EVALUATION OF THE URBAN HEALTH CLINICS DEMONSTRATION

REPORT TO THE UNITED STATES CONGRESS

- 1987 -

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The Congressional Mandate of 1977

In Section 3 of the Rural Health Clinics Act of 1977 (PL 95-210), the United States Congress mandated that demonstration projects be undertaken to investigate whether Medicare reimbursement changes adopted under PL 95-210 for rural clinics in underserved areas should be extended to urban clinics in underserved areas. These reimbursement changes were: (1) reimbursement by Medicare on a cost basis instead of fee-for-service, and (2) a waiver of the current Medicare limitation on services by nurse practitioners and physician assistants (NPs/PAs). This limitation specifies that services provided by NPs/PAs must be "incident to" the services of a physician and are not separately billable. The demonstration projects were to waive the "incident to" requirement and permit evaluation of the following issues:

(1) The relative advantages and disadvantages of reimbursement on the basis of costs and fee-for-service for physician-directed clinics employing NPs or PAs;

(2) The appropriate method of determining the compensation for physician services on a cost basis for the purpose of reimbursement of services provided in such clinics;

(3) The appropriate definition for such clinics;

(4) The appropriate criteria to use for the purpose of designating urban medically underserved areas; and

(5) Such other possible changes in the provisions of Title XVIII of the Social Security Act as might be appropriate for the efficient and cost-effective reimbursement of services provided in such clinics.

This Executive Summary briefly describes research and demonstration activities that have addressed the above questions, and then brings together and summarizes those findings which pertain to each question. It concludes by describing the organization of the rest of the report, which is devoted primarily to evaluation of the Urban Health Clinics Demonstration (UHCD) and secondarily to a more detailed description of the other activities than is given here.

The Urban Health Clinics Demonstration

The UHCD was established in response to the above congressional mandate. It focused primarily on the congressional questions relating to cost-based reimbursement (Question 1) and other possible changes in Title VIII (Question 5) and also obtained some information relating to physician compensation (Question 2). The present report is devoted mainly to presenting the results of an evaluation of the UHCD.

Description of the UHCD

The UHCD was conducted in 35 physician-directed urban clinics in California and Tennessee, for the purpose of: (1) assessing the relative merits of cost-based and fee-for-service reimbursement by Medicare to these clinics; and (2) testing the desirability of waiving the "incident to" restriction on Medicare reimbursement for clinic services by NPs/PAs. The demonstration was administered under contract by Technassociates, Inc. to the Health Care Financing Administration (HCFA), in the Department of Health and Human Services.

The demonstration began with a 22-month design and planning phase. Early in this process it was recognized that the UHCD could not follow a classic experimental design, in which a sample of clinics would be identified that was representative of urban clinics nationwide and the clinics would be randomly assigned to experimental and control groups. A representative sample would have been too costly because of the number of participating States and clinics required, and candidate clinics indicated that they wanted to choose their form of reimbursement and, in many cases, would not participate on the basis of random assignment.

The agreed upon demonstration design called for two or three participating States, with clinics in each State electing to join either the demonstration group, which operated under an "incident to" waiver, or the control group, without the waiver, and in addition electing either a cost-based or fee-for-service form of reimbursement. Data for evaluating the UHCD were to be obtained for a baseline period prior to the demonstration and for the duration of the demonstration itself.

The States were chosen through an extensive screening process, beginning with a review of national data and continuing with further study of potentially promising States and site visits to the most likely candidates. Selection criteria included availability of information on urban clinics in the State, the number of such clinics and the extent to which they served Medicare patients and operated in medically underserved areas, the legality of provision of primary care services by NPs/PAs, willingness of State Medicaid agencies and of Medicare Part B carriers to cooperate with the demonstration, and interest of clinics in participating. Once three States had been chosen, clinics were recruited by mail and telephone follow-up. Recruitment difficulties reduced the number of States from three to two.

In the final configuration of the demonstration, the 35 clinics fell into essentially three categories:

- Demonstration group clinics (i.e., clinics with the "incident to" waiver) reimbursed on a cost basis.
- Demonstration group clinics reimbursed on a fee-for-service basis.
- Control group clinics (i.e., clinics without the waiver) reimbursed on a fee-for-service basis.

Following the planning and design phase, the demonstration began August 1, 1983. The operational phase lasted 2 years, ending July 31, 1985.

Evaluation Purpose and Approach

The evaluation of the UHCD was conducted by Arthur D. Little, Inc. It was designed to determine and analyze the impact of the Medicare reimbursement changes on clinic operations and performance and on Medicare utilization and costs. The basic questions of interest to HCFA were:

- Whether the changes in reimbursement would lead to improved beneficiary access to clinic services, resulting in greater reliance on the clinics for primary care.

- Whether this would lower Medicare costs without impairing quality by substituting the clinics for more expensive sources of primary care and by allowing the clinics to manage total care more effectively.

- How the changes would affect clinic productivity, the cost of clinic services, and the quality of care.

Specifically, the evaluation focused on the following "impact variables":

- Clinic staffing,
- Task delegation from physicians to NPs/PAs,
- Productivity,
- Quality and appropriateness of care,
- Utilization patterns of clinic Medicare patients, at the clinic and elsewhere,
- Costs both at the clinic level and to Medicare, and
- Health care access.

It is important to emphasize that the study of utilization and costs was not limited to services obtained from the UHCD clinics themselves but included all Medicare-covered services obtained from all sources of care. Thus, it was possible to study tradeoffs between costs incurred in the clinic and elsewhere in the system.

Information for the evaluation came primarily from:

- Operational and performance data submitted by each clinic in cost reports and in "task analysis checklists" identifying NP/PA responsibilities.

- Site visits and interviews with clinic personnel conducted by both Technassociates and Arthur D. Little, Inc.

- Medicare claims data for an identified group of beneficiaries who used each clinic. Data included the number and costs of services, by type of service (e.g., office visits, inpatient days), location (e.g., clinic, MD office, nursing home), and for services provided by the demonstration group clinics, type of provider (M.D., NP, PA).

These data were used to develop indicators of the impact variables, which the evaluation then compared for cost-based versus fee-for-service clinics and their beneficiaries and for demonstration versus control group clinics and beneficiaries. Because site visit findings indicated that the reimbursement changes were having very little effect on clinic operations and that significant demonstration impact was unlikely, the clinics were also grouped into other categories (e.g., large versus small, Public Health Service (PHS) funded versus other, high versus low Medicare volume) to test for possible nondemonstration related factors that could affect the impact variables.

Limitations of the Evaluations

In reviewing results of the demonstration, it is important to recognize the limitations on the evaluation resulting from the demonstration's voluntary nature and the fact that only two States participated. The most important of these were:

- The UHCD clinics cannot be said to be representative of the clinic "universe," and their experience would not be confidently used to predict experience nationwide or even statewide.

- Because clinics were self-selected into the demonstration participant categories, reimbursement effects often cannot be distinguished from selection effects. Some of the results might have been different had the clinics been randomly assigned.

These limitations were partly offset by extensive reliance on qualitative information from site visits and interviews to test the reality of the quantitative findings and guide their interpretation.

Other Studies Addressing the Congressional Questions

The Municipal Health Services Program

Although the UHCD was the only demonstration project established explicitly to respond to the Congressional mandate, the Municipal Health Services Program (MHSP) was another demonstration project addressing similar issues and is, therefore, also described in this report. The MHSP was initiated by the Robert Wood Johnson Foundation and co-sponsored by the U.S. Conference of Mayors, the American Medical Association, and HCFA. It was conducted in five major cities: Baltimore, Cincinnati, Milwaukee, St. Louis, and San Jose. The program was designed to show whether city governments, working with health care providers and others, could improve the health care received by traditionally underserved urban population groups. The program sought to establish networks of community-based health centers to replace the hospital outpatient department or emergency room as the source of primary ambulatory care for these groups and to create linkages with public hospitals that would improve the continuity between ambulatory and inpatient care. The overall aim was to provide coordinated systems of care which would improve health care access, continuity, and patient satisfaction, while eliminating some of the high costs associated with the more fragmented traditional array of health services.

The participating cities each received approximately $3 million in Johnson Foundation grants for the MHSP. To qualify for continued funding, the cities had to undertake specified coordination activities and the health centers had to meet or approach specified performance targets for population served, productivity, and cost.

As part of the program, HCFA granted waivers of Medicare reimbursement requirements and approved similar Medicaid waivers in the five States involved. The Medicare provisions included, but were not limited to, cost-based reimbursement and a waiver of the "incident to" requirement for participating health centers. In addition, for beneficiaries using the health centers, Medicare benefits were expanded to include a number of preventive and other services not ordinarily reimbursed by Medicare, and patient deductibles and coinsurance were eliminated.

The MHSP was administered by the Johns Hopkins Hospital, under contract to the Foundation. Two separate evaluations were conducted: an evaluation of the program's impact on cost and utilization by the Center for Health Administration Studies, University of Chicago, and an assessment of the demonstration process by the Conservation of Human Resources, Columbia University.

Studies by the U.S. Public Health Service

In addition to the two demonstration projects, activities of PHS are relevant to the congressional questions. Through its funding and monitoring of community health centers, PHS has experience relevant to the definition of physician-directed clinics for the purpose of regulating the use of NPs/PAs (Congressional question 3), and PHS is engaged in a continuing effort to evaluate and improve criteria for defining and identifying medical underservice (Congressional question 4).

Findings on the Congressional Questions

In general, evidence from the demonstrations is inconclusive because of the limitations of the evaluation resulting from the voluntary nature of clinic participation and the number of States involved. In the UHCD, differences between differently reimbursed clinics appear to have been influenced more by the health care environment in the States where they were located and by self-selection into the reimbursement categories than by the reimbursement methods themselves. The numerous provisions of the MHSP prevent any attribution of results to cost-based reimbursement or other specific causes. Meanwhile, health system changes resulting from the growing supply of physicians and other factors have focused Medicare policy attention more on capitation than on cost-based reimbursement and have diminished the perceived urgency of waiving the "incident to" requirement as a means of improving health care access. Since the Urban Clinics demonstration was conducted prior to the TEFRA capitation changes, the findings from this report will not provide assistance in the Administration's goal of developing capitated health care alternatives for Medicare patients." However, the demonstrations and other studies do provide some evidence on the congressional questions, and their experience may also provide guidance for the future study of either these or future policy concerns.

Question 1: Advantages and Disadvantages of Cost-Based versus Fee-for-Service Reimbursement

A definitive comparison of cost-based and fee-for-service Medicare reimbursement in urban clinics may not be feasible due to the difficulty of securing clinic participation on the basis of random assignment and the higher cost of involving multiple States. The UHCD did, however, provide the following evidence relating to this question:

- All but two of the cost-based clinics chose cost reimbursement because they thought it would benefit them financially. Some had prior satisfactory experience with cost reimbursement; others specifically anticipated high per-visit costs and/or low visit rates per provider.

- Overall cost per visit was in fact somewhat higher in the cost-based clinics than in the fee-for-service clinics.

- Medicare cost per visit was also higher in the cost-based clinics even when the costs of ancillary services billed by the fee-for-service clinics were added to the visit charge to make the reimbursement methods comparable. No data were available on ancillary services that were provided by the cost-based clinics and included in the per-visit payment, so a comparison of visit content for the two types of clinic was not possible.

- Differences in total systemwide Medicare utilization and costs for patients of cost-based and fee-for-service clinics were dominated by State effects.

  - In California, but not Tennessee, patients of the cost-based clinics incurred significantly higher total Medicare costs than did patients of the fee-for-service clinics.

  - In Tennessee, but not California, the cost-based clinics appeared to provide greater continuity of care, in that their patients received a significantly higher proportion of both their ambulatory care and their total health care from the clinic itself than did the fee-for-service patients.

  The State differences underscore the fact that the experience of a small number of States cannot be reliably used as a basis for predicting national experience.

Evaluation studies of the MHSP found the program to be in many respects successful, but did not identify any effect of cost-based reimbursement on the results. Findings included:

- The program successfully reached most of its target populations. It increased primary care utilization and appears to have lowered inpatient utilization. However, it was not especially successful in attracting Medicare patients.

- The clinics were able to contain costs over time despite inflation. Their costs per visit were similar to those of the cost-based UHCD clinics, but they achieved higher visit rates, possibly influenced by the productivity targets accompanying the demonstration grants.

- Users of MHSP health centers had lower Medicare and Medicaid costs than did nonusers. For Medicare, inpatient cost savings more than offset the increase in ambulatory cost resulting from the expanded coverage, for a significant net reduction.

Neither demonstration found evidence of a relationship between method of reimbursement and the quality of care.

Question 2: Method of Physician Compensation

Neither demonstration explicitly addressed physician compensation. However, many of the UHCD clinics obtained all or part of their physician complement on a contract rather than salaried basis, with the physician continuing to maintain an outside practice. The evaluation considered the reasons for, and effects of, using physicians under contract. Again, small numbers make the results suggestive rather than definitive. Findings were:

- Many of the UHCD clinics were attempting to upgrade their physician staff in terms of factors such as credentials, hospital admitting privileges, and productivity. Often, they found this easiest to accomplish on a contract basis. Cost-based and fee-for-service clinics used contract physicians about equally.

- Clinics with a high proportion of contract physicians averaged significantly higher visit rates than other clinics, as well as a significantly higher clinic component of total health care costs. The clinics paid more for these physicians, but their higher visit rate offset their cost so that cost per visit was not increased. A review of medical records resulted in a significantly lower average adequacy rating for records of these clinics than for records of the clinics with more salaried physicians, suggesting that the increased productivity may be achieved at the expense of more thorough recordkeeping.

Question 3: Definition of Physician-Directed Clinics

A physician-directed clinic may be defined as one where a physician is present at all times, the patient is under a physician's care, and any nonphysician services are under medical supervision. However, this is not a sufficient answer since it raises the question of what is meant by nonphysician services and by medical supervision. Operationally, PHS points out that the issue of defining physician-directed clinics is tied to another issue; namely that of what types of health care service may be provided, under what circumstances, by various categories of health care professional. For practical purposes, this question is answered partly in State laws regarding professional

licensure and practice and partly in the reimbursement policies of public and private third-party payors.

Question 4: Criteria for Designating Urban Medically Underserved Areas

PHS has used three geographic-based approaches to identifying targets for Federal assistance. Two employ formulas: the designation of medically underserved areas (MUAs), which is used to determine priority funding for community health centers (CHCs) and to qualify rural clinics for the provisions of the Rural Health Clinics Act, and the designation of health manpower shortage areas (HMSAs), which is used to target areas for National Health Service Corps placements and other health manpower assistance. The third is the Needs/Demand Assessment, which is not formula-based, but involves a study of local health care demand and resource availability. To supplement the MUA process, CHC grant applications must include a Needs/Demand Assessment.

Several studies have concluded that the existing approaches do not identify underserved or shortage areas with sufficient accuracy, especially in the case of areas where different populations have different needs and characteristics. Accordingly, PHS has begun to study the feasibility of adopting population-based rather than geographic-based criteria for targeting need. Until results are available, PHS recommends continued use of the existing criteria.

Question 5: Other Changes in the Provisions of Title XVIII

One key issue that emerged from these studies was the role of NPs and PAs in urban clinics. The "incident to" restriction on NP/PA practice was waived in both the UHCD and the MHSP, but only in the UHCD was the waiver emphasized or made the explicit subject of study. Due to the small number of participating States and clinics in both the UHCD and MHSP projects, it was not feasible to perdict the impact that these demonstrations designs may have on the entire Medicare population. Therefore, these recommendations are offered as guidelines for future areas of study.

- Under the waiver, NPs/PAs accounted for an average of 16 percent of office visits billed by the clinics. These were primarily brief, limited, and intermediate visits, although a few extended or comprehensive visits were billed. Only a small number of clinics billed for NP/PA services offsite, primarily in nursing homes or the patient's home.

- The waiver facilitated Medicare services by several of the clinics with strongly NP/PA based practices by enabling more Medicare patients to be seen and permitting more flexible scheduling of

Medicare appointments. For some clinics it served more to validate existing practice than to actually change practice. However, the "incident to" requirement could be interpreted to require closer physician supervision than would have been feasible for some of these clinics. A waiver in other States may have much greater impact than was observed in the demonstration.

- In California, total Medicare costs were significantly lower for patients of the demonstration group (waivered) clinics than for the control clinics. (The comparison was not made in Tennessee, which had only one control clinic.)

- At the clinic level, NPs/PAs showed somewhat fewer visits per full time equivalents (FTE) than did physicians, regardless of demonstration category. However, this may reflect different ways of counting administrative time when determining the number of FTEs.

- No significant difference was found in cost per visit between demonstration and control clinics.

- No effects on quality of care were found, except that clinic treatment protocols were superior in clinics that extensively used NPs/PAs.

- Reflecting the growing physician supply, together with increased competition and other pressures to use physicians, the NP/PA share of total visits barely increased during the demonstration, and there was a slight decrease in the level of clinical responsibility delegated to NPs/PAs. For clinics that use NPs/PAs only as a means of compensating for a physician shortage, both NP/PA use and the "incident to" requirement will probably be less important in the future.

- However, the "incident to" requirement could still have a major limiting effect on clinics which have built their practices largely around NPs/PAs for philosophical reasons unrelated to physician supply.

In the MHSP, the cost savings experienced by Medicare were achieved either in spite of or partially because of an expansion of Medicare benefits. Analysis of the results was unable to confirm a causal relationship between this aspect of the demonstration and the inpatient and total cost savings found. More study would be needed to determine whether expanded coverage would have a similar effect in the absence of the other reimbursement changes and the management guidance and incentives provided to the MHSP clinics.

While the results of these studies do not definitively indicate how Medicare services in urban clinics should be reimbursed, they provide useful guidance to future Medicare policy studies. Relevant findings include:

- The MHSP demonstrated the feasibility of providing a major portion of health care services to the urban poor through neighborhood health centers.

- Although many of the UHCD clinics saw relatively few Medicare patients, some had very large Medicare populations, and there clearly exists a Medicare population that receives much or all of its primary care through this type of clinic. The use of more expensive hospital outpatient and emergency room services by these patients would probably be reduced by increased ability of the clinics to provide comprehensive services.

- For most urban clinics, effects of Medicare reimbursement practice alone are probably not large enough to significantly change the way the clinics operate.

- Effects from the health system environment may combine with reimbursement effects to produce quite different results in different environments.

- In order to significantly and consistently influence overall clinic operations and patient health care utilization, Medicare changes may need to be more extensive, integrated into a larger effort involving other sources of payment as well, and accompanied by guidelines or targets for clinic performance.

- Evidence from both demonstrations suggests that, at least initially, special efforts will be needed to market these programs to Medicare patients other than those who customarily use this type of clinic.

I. INTRODUCTION

In Section 3 of the Rural Health Clinics Act of 1977 (PL 95-210), the United States Congress mandated that demonstration projects be undertaken to determine whether changes in Medicare reimbursement adopted under PL 95-210 for rural clinics in underserved areas should be extended to urban clinics in underserved areas. These reimbursement changes were: (1) reimbursement by Medicare on a cost basis as opposed to fee-for-service, and, (2) a waiver liberalizing Medicare reimbursement rules concerning the provision of primary care services by NPs and PAs.

The demonstration requirement is summarized as follows in the legislative history of PL 95-210:

> The bill requires the Secretary of Health and Human Services to develop and carry out demonstration projects to evaluate reimbursement on a cost basis for services provided by physician-directed clinics in urban medically underserved areas. The services to be included in these projects are those which are presently covered under the Medicare program and any services provided by primary care practitioners ,i.e., nurse practitioners/physician assistants NPs/PAs. employed by such clinics which would otherwise be covered if provided by a physician. The Secretary is to report to the Congress... on the results of these projects with any recommendations for legislative changes which he finds necessary or desirable.

Section 3 of PL 95-210 further specifies the questions of interest to the Congress as follows:

> Sec. 3(a) The Secretary ,of Health and Human Services. shall provide, through demonstration projects, reimbursement on a cost basis for services provided by physician-directed clinics in urban medically underserved areas for which payment may be made under title XVIII of the Social Security Act and, notwithstanding any other provision of such title, for services provided by a physician assistant or nurse practitioner employed by such clinics which would otherwise be covered under such title if provided by a physician.
>
> (b) The demonstration projects developed under subsection (a) shall be of sufficient scope and carried out on a broad enough scale to allow the Secretary to evaluate fully--
>
> (1) the relative advantages and disadvantages of reimbursement on the basis of costs and fee-for-service for physician-directed clinics employing a physician assistant or nurse practitioner;
>
> (2) the appropriate method of determining the compensation for physician services on a cost basis for the purposes of reimbursement of services provided in such clinics;

(3) the appropriate definition for such clinics;

(4) the appropriate criteria to use for the purpose of designating urban medically underserved areas; and

(5) such other possible changes in the provisions of title XVIII of the Social Security Act as might be appropriate for the efficient and cost-effective reimbursement of services provided in such clinics.

The UHCD was established explicitly in response to the Congressional mandate and is the main subject of this report. The MHSP which came into being independently of the mandate, included similar Medicare provisions and therefore also yielded information relevant to the above congressional questions. In addition, separate research efforts by PHS have addressed the questions concerning the definitions of physician directed clinics and of urban medically underserved areas.

II. DESCRIPTION OF THE URBAN HEALTH CLINICS DEMONSTRATION AND EVALUATION

The Demonstration

The UHCD was conducted in 35 physician-directed urban clinics in two States: California and Tennessee. Following a 22-month planning and design phase, the operational phase of the UHCD began on August 1, 1983 and ended on July 31, 1985. The demonstration was administered, by Technassociates, Inc., under contract to HCFA. The demonstration design and the process by which it was developed are described below.

Reimbursement Provisions

The UHCD was designed to study two Medicare reimbursement questions: (1) the relative merits of cost-based and fee-for-service reimbursement, and (2) the desirability of waiving the "incident to" restriction on Medicare services by NPs and PAs.

Under fee-for-service reimbursement, a clinic (or the patient if the clinic did not take assignment) billed Medicare in the traditional manner for each service provided. Under cost-based reimbursement the clinic (which was required to take assignment) was paid, for each Medicare visit, a rate based on its projected average aggregate cost per visit (all patients) for Medicare reimbursable services. The rate included all expenses--ancillary, administrative, etc., as well as the professional component. In addition, the clinic was reimbursed for its Medicare bad debt (deductibles and coinsurance billed but not collected). The clinic received regular interim payments subject to year-end adjustment.

The waiver removed the requirement under Medicare that any services provided to Medicare patients by midlevel practitioners such as NPs and PAs must be "incident to" the services of a physician and included in the physician's bill. The language of the "incident to" restriction is ambiguous but generally implies that an NP or PA should not be the principal provider of care to a Medicare patient. Clinics receiving the waiver of "incident to" were classed as demonstration group clinics in the UHCD; those without the waiver were the control group.

"Ideal" versus Feasible Design[1]

In order to account for all variables operating in clinic settings that could influence study outcomes, a classic experimental design was initially considered. In such an idealized design, States and/or clinics would be randomly selected from the total universe to ensure adequate representation of variations in such factors as State and regional interpretations of "incident to," Medicaid reimbursement policy toward NPs/PAs, intermediary and carrier practices, responsibilities delegated to NPs/PAs, and existing levels of clinic efficiency and productivity. Once this selection was made, clinics would be randomly assigned to demonstration or control status and to cost-based or fee-for-service reimbursement. Some clinics would change from their usual reimbursement method to another, while other groups would maintain their usual reimbursement mode. There might also be stratification in terms of degree of NP/PA supervision, methods of reimbursing physicians and NPs/PAs, and reimbursement rates.

While such an idealized design might be desirable, it was judged to be neither feasible nor economically warranted. Technassociates, Inc., estimated that it would require six to ten States and/or 180 to 300 clinics. The costs of running such a demonstration would exceed several million dollars, and the administrative problems would require constant monitoring and technical assistance. Also, in small States, and even some large ones, the number of eligible clinics was too small for random assignment to demonstration participant groups.

Finally, to make it possible to implement the ideal design, the demonstration participants would need to be more committed to the policy issues and research agenda than was the case. Preliminary interviews and site visits (discussed later) found only moderate interest in the demonstration issues at the State level and among most clinics. It became apparent quite early that most clinics preferred to continue their existing reimbursement arrangements under the demonstration. Many would not agree to participate in the study if they did not know in advance whether they were participating as a demonstration or control clinic, and under what method of reimbursement. Complete random assignment of clinics was not possible without much stronger incentives. Therefore, the demonstration design was structured to change the existing practice environment as little as possible, except for the reimbursement waiver for NP/PA services not incident to a physician visit.

Following consideration of several possible design options by a Review Panel of experts convened to provide guidance on design issues,

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[1]Material in this and the following section is summarized from The Urban Health Clinics Demonstration (UHCD) Final Project Report, Technassociates Inc., and GMS Associates, June 1986.

three options were chosen for further study. They differed on the number of States (two versus three), nature of the control group, use of prospective versus retrospective data, and other factors. The design finally adopted was one in which the demonstration group would receive the "incident to" waiver and the control group would include clinics both with and without NPs/PAs. To maximize the possibility of generalizing study findings, as well as the possibility of making some use of random selection, three States would participate, if possible: one large State and two smaller States. Data would be collected prospectively over the demonstration period and also for a baseline period preceding the demonstration, so that the analysis would include pre-post as well as cross-sectional comparisons.

The duration of the waiver period was an important design issue. The minimum period required was 2 years, equivalent to the demonstration period. However, many clinics expressed to Technassociates the concern that this short interval, combined with the possibility that no permanent change in "incident to" would be made, would inhibit them from undertaking any significant expansion of NP/PA staffing or utilization under the UHCD. To increase the incentive to clinics to expand NP/PA use, Technassociates recommended that the waiver be continued for an additional 2 years beyond the end of the demonstration. However, this proved to be administratively infeasible.

Site Selection and Clinic Recruitment

At the beginning of the project, all 50 States and the District of Columbia were potential candidate sites for the demonstration. The first step at narrowing this field was to review available national data for information on the number of potentially eligible clinics in each State, the extent to which they served Medicare and Medicaid populations, and the extent to which they served populations located in urban medically underserved areas. A subset of States was then further reviewed to explore potential Medicaid interest in the demonstration, Medicaid reimbursement policy toward NPs/PAs, the legal status of NPs/PAs, and other factors affecting the potential environment for the demonstration in each State.

The above process resulted in elimination of States which appeared to have few eligible clinics or which showed negative interest at the State level or other significantly unfavorable environmental factors. Eight States remained as candidates for the demonstration, of which five were preferred sites, one was a backup, and two were considered unlikely possibilities but worth limited additional investigation.

Visits were made to all except the backup States to explore in more detail their potential participation. The visits included discussions with Department of Health and Human Services Regional Office staff, State Medicaid agency staff, State Health Department staff, Medicare carriers and intermediaries, and representatives of several clinics in at least two, and usually three, urban areas in each State. On the basis of the visits, the States were rated according to the following selection criteria:

- Availability/accessibility/quality/cost of listings of eligible urban clinics,
- Size/mix of probable clinic universe,
- Feasibility/cost of carrier data acquisition,
- Feasibility/cost of intermediary data acquisition,
- Interest of Medicaid agency,
- Minimal/no anticipated problems with obtaining Medicaid waivers,
- Clinics' ability/interest in participating,
- Support for/use of NPs/PAs in State, and
- Strict interpretation of "incident to" regulations.

The aggregate ratings resulted in identification of California, Georgia, and Tennessee as presenting the best opportunities to mount a demonstration that would provide a broad range of experiences, a variety of freestanding clinics, a range of reimbursement types, and positive interest expressed at all levels. These three States also had good information on their clinic population and thus offered the best opportunities for some randomization in selecting control and demonstration clinics. Georgia was subsequently eliminated because of a low level of clinic response, time constraints associated with the need for Medicaid waiver approval, and budget constraints associated with implementing the demonstration in a third State. The demonstration was, therefore, conducted in two States: California and Tennessee.

On the basis of available lists of clinics in the (initially) three States, more than 830 clinics were solicited by mail and telephone follow-up as candidate participants in the demonstration. Approximately 50 clinics in California and 30 in Tennessee indicated an interest and appeared to be eligible. (Many clinics were ineligible either because they were designated Rural Health Clinics or because they were hospital-based outpatient departments.) Few responses were obtained in Georgia, and that State was dropped from further consideration.

Initial plans were to begin the operational phase of the UHCD in October 1982, about 4 months after the clinics were recruited. However, a series of delays relating to carrier selection prevented this early implementation. The delays led to some loss of participants, but new recruits were found to balance most of the losses. By the time the demonstration did begin, in August 1983, 41 clinics had signed participation agreements. Six subsequent dropouts left the final number of participants at 35.

Final Form of the Demonstration

Table 1 shows how the participating clinics were distributed by State and demonstration category at the end of the demonstration. Essentially, there were three participant categories:

- Cost-based demonstration clinics; i.e., clinics that were reimbursed on a cost basis and also received a waiver of Medicare restrictions on NPs/PAs.
- Fee-for-service demonstration clinics, i.e., clinics that received the waiver but were reimbursed on the usual fee-for-service basis.
- Fee-for-service control clinics which did not receive the waiver.

All but one of the control clinics were located in California. None of the control clinics were reimbursed on a cost basis under the UHCD; however, two were cost-based under other jurisdictions, using different reimbursement formulas. These were excluded from much of the analysis of the demonstration data.

The participating clinics received all demonstration-related Medicare reimbursement from HCFA's Health Services Studies Office (HSSO) (formerly ODR: the Office of Direct Reimbursement). In the case of fee-for-service demonstration (i.e., waivered) clinics, this consisted mainly of reimbursement for services provided by NPs/PAs. The clinics billed these to HSSO at a rate not to exceed the lesser of the area prevailing charge for general practitioner services and the clinic's customary charge. Physician and ancillary services were usually billed through the clinic's regular Part B Medicare carrier. (HSSO did pay some fee-for-service physician claims, as in the case of a clinic which did not have a Medicare provider number with a carrier.) For cost-based clinics, HSSO handled all Medicare payments for the duration of the demonstration.

The demonstration did not set any performance targets or make any specifications regarding clinic operations except for the way bills were submitted. The intent was to see whether the reimbursement changes, in and of themselves, would exert an influence on the behavior of the clinics and the health care utilization and cost patterns of their Medicare beneficiaries.

Table 1

UHCD Clinics by State and Demonstration Participant Category

	California	Tennessee	Total
Demonstration Group, Cost-Based	6	4	10
Demonstration Group, Fee-for-Service	9	3	12
Control Group, Fee-for-Service	10	1	11
Control Group, Unclassified [1]	2	0	2
	27	8	35

[1] These were two clinics reimbursed on a cost basis by other payors, using formulas different from that of the UHCD.

The Evaluation

Purpose

The evaluation of the UHCD was designed to determine and analyze the impact of the Medicare reimbursement changes on clinic operations and performance and on Medicare utilization and costs--not only the cost of clinic services, but also the total cost of health care services obtained from all sources by beneficiaries using the clinics for primary care. The basic questions of interest to HCFA were:

- Whether cost reimbursement and/or the waiver would improve beneficiary access to clinic services, thereby encouraging beneficiaries to obtain care more consistently from the clinics.
- Whether this would lower Medicare costs without impairing quality, both by substituting the clinics for more expensive sources of primary care like emergency rooms and by enabling the clinics to manage the beneficiaries' total care more cost-effectively, leading to reductions in hospitalization and overall medical costs.
- How the reimbursement changes would affect clinic productivity and the cost of clinic services.

The evaluation focused specifically on the impact of the demonstration on the following:

- Clinic staffing,
- Nature and extent of task delegation from physicians to NPs/PAs,
- Productivity,
- Quality and appropriateness of care,
- Utilization patterns of clinic Medicare patients, at the clinic and elsewhere,
- Costs both at the clinic level and to Medicare, and
- Health care access.

Secondarily, the evaluation sought to identify clinic attributes other than the UHCD reimbursement provisions which appeared to affect Medicare utilization and costs.

Evaluation Design Limitations

The analytic approach used in the evaluation is best described as comparative in spirit rather than inferential or causal. No formal models that purport to be causal relationships were specified or estimated. The analyses were directed toward making unbiased and descriptive measurements of the differences between selected groups of clinics. Final conclusions reached in the study necessarily involved evaluative judgments based not only on the quantitative analyses but also the more qualitative results obtained from the

site visits. This approach was adopted because the demonstration design limited the degree to which one could draw unambiguous conclusions about the effect of either reimbursement methods or the waiver of the "incident to" provision.

As shown previously in Table 1, clinics participating in the demonstration were grouped by reimbursement status (fee-for-service and cost-based) and by their waiver status ("incident to" provision waived/not waived).

The design raised three types of statistical issue:

- o Structural issues
- o Power or sample size issues
- o Sampling or clinic selection issues.

The structure of the design is simply the "definition" of the various groups of clinics from which data were obtained. As seen in Table 1, the design was structurally unbalanced due to lack of a control group for the cost-based clinics. This lack of balance restricted the achievable evaluation objectives. The two groups of fee-for-service clinics -- demonstration and control --formed a "generally interpretable nonequivalent control group design"[2] with pre- and post-demonstration measures. An analysis of these two groups allowed one to estimate effects of the waiver on fee-for-service clinics. More importantly, the two groups of demonstration clinics --fee-for-service and cost-based -- could be compared with each other to estimate the difference in the two reimbursement methods when the "incident to" provision is waived. It was not possible, however, to determine either: (1) effects of the waiver for cost-based clinics, or (2) differences related to reimbursement methods in the absence of the waiver.

Since most of the cost-based clinics were not previously cost-based, they simultaneously experienced two reimbursement changes: adoption of the waiver and adoption of cost-based reimbursement. Formally speaking, there is no way to distinguish which change was responsible for a given outcome. This underscores the importance of qualitative information to the evaluation.

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[2]See Chapter 3 in T.D. Cook and D.T. Campbell, Quasi-Experimentation:Design and Analysis Issues for Field Settings, Rand-McNally, Chicago, 1979.

A second important statistical consideration was the fact that the limited number of clinics participating in the demonstration affected the power of the analysis. Detailed power calculations showed, for example, that average between-group cost differences of $5 per visit would be very hard to detect, though differences larger than $12 had a very high chance of being detected. The problem of sample size increased during the analysis when substantial differences in Medicare utilization and costs were found between the two States, calling for a need to conduct some State-specific analyses. Since Tennessee had only eight clinics, and only one of these was a control clinic, opportunities for analysis within Tennessee were limited.

Finally, since the demonstration was a quasi-experimental or observational study, the results are difficult to interpret and are not generalizable because the groups being compared were not equivalent with respect to characteristics other than participant category. Certain categories attracted certain types of clinic and the observed results may reflect these pre-existing characteristics rather than the reimbursement provisions being studied.

All of the above design problems can be viewed as forms of selection bias because they all resulted from the fact that clinics selected themselves into the demonstration itself and into the specific participant categories. Selection bias may have both external and internal effects on the results of a quasi-experimental design. The internal effect is that the estimated difference between two groups may be biased because the two groups are not equivalent. The external effect is that the estimated difference may not be generalizable because the clinics participating in the study are different from those that are not; in this case, clinics that joined the UHCD, even as controls, may differ in important respects from the clinic "universe." This is certainly the case if the "universe" is taken to be clinics nationwide, but it may also be true even within the two demonstration States.

Information Used in the Evaluation

Information for the evaluation came predominantly from the clinics and from Medicare claims files. Technassociates, Inc., visited the clinics to obtain operational and financial data and information needed for demonstration management, and also obtained certain standardized operational and performance information from the clinics in cost reports, "task analysis checklists," and Medicare patient lists. The cost reports furnished cost data and provider staffing and visit data in accordance with a format adapted from the reports required by HCFA from rural health clinics; for most clinics, these were obtained for two time periods: (1) a baseline period consisting of the fiscal year preceding the demonstration, and (2) the first fiscal year during the demonstration. The task analysis checklists were completed by clinic NPs and PAs to characterize the functions they performed at the clinics; these were completed early in the course of the demonstration and again near the end of the demonstration. Finally, each clinic submitted a list of the Medicare identification numbers of beneficiaries who had visited the clinic within the 6 months prior to the demonstration, and most of the clinics updated these lists early in the course of the demonstration.

Arthur D. Little, Inc., visited 21 of the clinics and held telephone conversations with the executive directors and sometimes other personnel at the remaining clinics to obtain information both on the demonstration experience and on other factors or clinic concerns that might affect the clinic performance and Medicare utilization variables studied. Topics explored were:

- The clinics' environment, origins, management and operational characteristics, recent operating experience, and current concerns external to the demonstration.
- Reasons for participating in the demonstration and for participant category choice.
- Experience with the demonstration process.
- Activities undertaken or planned in response to the reimbursement changes.
- Perceived results of the demonstration, level of satisfaction, and future plans.
- Clarification of any questions on the cost report data.

Besides the clinic-level information, the other major category of evaluation information was the person-level Medicare claims history of the beneficiaries identified on the clinic patient lists. Arthur D. Little, Inc., obtained these data from the following sources:

- ODR/HSSO: All demonstration-related claims.
- The regular Part B carriers in the two States: All other Part B claims, i.e., claims for physician services, in or out of institutional settings.
- HCFA's Medicare Statistical Files:
  - Part A claims--i.e., hospital, nursing home, home health care, and certain outpatient and emergency room clinics;
  - Beneficiary eligibility and demographic data.

The Part B data were obtained for health care services delivered during a 30-month period: the 6 months preceding the demonstration and the 2-year demonstration period. Eligibility data were obtained for the same period. Part A data, however, were available on a beneficiary-specific basis only for the final year of the demonstration, so that total utilization and costs could be determined only for that year.

Outcomes Studied

In the analysis of demonstration impact, the impact on utilization and costs was studied primarily through the claims data. For the patients of each clinic, the analysis looked at:

- Office visits and, for the fee-for-service clinics, laboratory and radiology procedures and other health care services obtained at the patient's "own" clinic--i.e., the clinic whose patient list identified this patient. Since the cost-based clinics were reimbursed by visit, their data did not include information on other procedures.
- Offsite services received from "own" clinic providers.
- In the case of the demonstration clinics, types of service provided by physicians and by NPs/PAs.
- Number of surgical procedures, all locations.
- During the final demonstration year (with both Part A and Part B claims data available):
  - Total ambulatory care -- office visits, laboratory and radiology, procedures, and outpatient surgery -- received from all sources.
  - Proportion received from "own" clinic versus other sources of care (other clinic or physician's office, hospital outpatient department or emergency room, and, for ancillary services, independent laboratory).
  - Days of inpatient hospitalization and nursing home care.
  - Costs to Medicare of the preceding plus services received at home; total annual costs for all services.

The claims data also contributed to determining impact on the following variables other than utilization and costs:

- Task delegation: Comparison of NP/PA and physician claims.
- Access: Extent of offsite services and the proportion of beneficiaries who are regular users of the clinic.
- Quality/appropriateness: Laboratory, radiology, and surgical procedures.

The HCFA eligibility data were used to adjust the utilization data by beneficiary age and sex and to adjust the denominator for utilization rates to reflect reductions in the overall population due to mortality. The mortality data also contributed to the review of quality.

In addition to the uses of site visit information summarized earlier, the clinic-level information from site visits, interviews, cost reports, and task analysis checklists was used to develop various measures of impact on staffing, task delegation, productivity, and clinic-level costs, and to some extent quality/appropriateness and access.

Both the claims data and the clinic operational and performance data were aggregated and compared for the different demonstration participant categories. Data limitations (particularly the lack of baseline Part A claims data and of meaningful baseline histories for some of the cost-based clinics) necessitated that these comparisons be mainly cross-sectional, though some limited comparisons were made of the baseline against the demonstration period. In addition, the operational data from site visits and clinic reports were used to define clinic categories for comparison based on attributes other than demonstration status which might be associated with differences in Medicare experience. Information from the site visits and the analytic comparisons was integrated in determining the extent to which identified differences and changes appeared to reflect the demonstration or other causes.

III. THE DEMONSTRATION PROCESS

After a slow start due to the complexity of the payment system changes required by the demonstration, the UHCD was proceeding smoothly by the end of the first year. Major aspects of the demonstration process that are relevant to the interpretation of evaluation data include the following:[3]

- Widely differing clinic and State characteristics made demonstration effects difficult to detect.
- The demonstration did not exert a major influence on most of the clinics.
  - The majority of clinics were not greatly reliant on Medicare and hence not especially affected by Medicare reimbursement policy.
  - Many were experiencing other influences and pressures that occupied more of their attention.
  - The growing supply of physicians, combined with health care competition, tended to undercut clinic plans for increased use of NPs/PAs.
- Clinic interviews revealed strong evidence of selection bias into the demonstration participant categories, with higher-cost clinics tending to choose cost-based reimbursement, financially self-sufficient clinics tending to choose fee-for-service, and high NP/PA users tending to choose the demonstration group.
- There was very little demonstration response; i.e., only a few clinics reported doing anything differently as a result of the demonstration.
- The demonstration's impact was perceived to be limited to a few clinics and to consist of:
  - More flexible scheduling of Medicare appointments in some clinics due to the waiver, resulting in somewhat improved access.
  - Financial relief for some of the cost-based clinics.

[3]For a detailed description and assessment of the demonstration process, see Evaluation of the Urban Health Clinics Demonstration: Draft Interim Report, Arthur D. Little, Inc., April 1985.

Initial Difficulties

In addition to the difficulties encountered in identifying the demonstration States and recruiting clinics, the UHCD experienced both initial delays and continuing problems in establishing the special payment systems required. The chief initial delay was incurred in putting in place the computer systems that would handle demonstration payments by HSSO, particularly payments to the fee-for-service clinics. The other major problem was establishing coordination mechanisms with Medicaid and other payors for timely reimbursement of deductibles and coinsurance associated with demonstration payments. Problems with turnaround in payments persisted for about the first year of the demonstration.

Of the six clinics that dropped out of the demonstration, four cited payment delays as their principal reason for ceasing to participate. At least one other clinic stopped billing HSSO because of payment problems. The two remaining dropouts resulted from difficulty with the billing process and the data reporting requirements.

By the end of the first demonstration year, most of the operating problems had been resolved and participation had stabilized. The clinics remaining with the demonstration were generally interested in having it go well, and the attendance at annual conferences held for participants indicates that many of them were interested in the reimbursement issues being studied and the policy outlook on these issues.

The Clinic Population

The participating clinics were a diverse group. They ranged in size from 1,600 to 83,000 annual visits. Thirteen were PHS-funded CHCs and perhaps another 15 operated in a similar manner, serving indigent patients and receiving varying amounts of public subsidy. Four, including one of the CHCs, were county health department clinics. Finally, two clinics were private practices and four others operated essentially like private practices, with little or no subsidy. Of these last six, two were part of a chain of clinics that combined drug treatment and primary care services, one combined primary care and urgent care, and one was a multispecialty group practice. The latter clinic was eventually excluded from the quantitative part of the analysis because it reorganized during the demonstration in a way that would confound the analysis, and it was so large that its data would unduly affect overall results.

For multisite organizations, the basis of participation also differed. Some participated as one clinic with all sites or a subset of sites, while others designated each site as a participating clinic, sometimes assigning them to different demonstration categories.

The majority of clinics were not particularly Medicare oriented, and only 14 estimated that Medicare accounted for 10 percent or more of their patients or patient visits. Ten had fewer than 100 Medicare patients on their patient lists once the lists were screened for eligibility and duplications. By contrast, two clinics treated exclusively elderly patients. One of these was a large clinic with an eligible list of 3,139 beneficiaries; the other was small with 732. Several other clinics also had large numbers and/or substantial proportions of Medicare patients.

NP/PA use also varied widely. A few clinics were highly NP/PA centered, with the physician primarily serving as a resource to the NPs/PAs. Others relied about equally on NPs/PAs and MDs, working as colleagues, with the physicians generally seeing the more complicated cases. Still others used NPs/PAs to augment their clinical staffs but were not highly dependent on them. Finally, some of the clinics with NPs/PAs used them only or primarily for services other than adult medicine, such as family planning or pediatrics. Several of the control group clinics did not have NPs/PAs.

For some of the clinics that extensively used NPs/PAs, NP/PA use was part of the clinic's operating philosophy. NPs/PAs were perceived to be more patient and better listeners than physicians, and better suited to providing the chronic care management and psychosocial support needed by the elderly. For two clinics, their low cost was integral to the clinics' strategy of offering low-priced primary care with minimal reliance on public subsidies or Medicaid. Other clinics used them mainly as a way of compensating for inadequate physician staffing. NPs/PAs were cited as providing continuity of care in the face of turnover among National Health Service Corps physicians, and as providing coverage when physicians could not be present at all sites at all times. A few clinics were dissatisfied with their physicians and felt that the NPs/PAs did a better job.

In general, NP/PA use was greatest in smaller clinics and also in clinics with fewer Medicare patients. A major exception to the latter was one of the clinics specializing in the elderly, in which both NPs/PAs and physicians were integral to the practice.

Eight of the participating clinics were in Tennessee, the rest in California. Some of the clinic characteristics were unevenly distributed between the States; for instance, all of the minimally subsidized clinics and most of the low-Medicare clinics were in California.

Reasons for Joining the UHCD

Most clinics joined the demonstration in order to promote the use and acceptance of NPs/PAs. Other reasons included the prospect of obtaining a Medicare provider number, obtaining cost-based reimbursement, or obtaining data on clinic utilization from the evaluation. Some clinics joined just to help out in view of the recruitment difficulties that the demonstration was experiencing.

Table 2

Selected Statistics, California and Tennessee

	U.S.A.	California	Tennessee
Percent of Population Aged 65 and Over, 1984	11.9	10.5	12.0
Persons Served[1] per 1000 Medicare Enrollees, 1983	637.6	712.6	603.0
Percent of Families Below Poverty Line, 1979	9.6	8.7	13.1
Non-Federal Physicians per 100,000 Civilian Population, 1982	206	258	172
Community Hospital Beds per 1000 Population, 1983	4.4	3.3	5.7
Medicare Reimbursement per Person Served[1], 1983	$2,975	$3,149	$2,554

[1]"Persons served" refers to the number of beneficiaries who actually received Medicare benefits of any kind (Part A and/or Part B) during the specified year.

Sources: Population and poverty figures are from the Statistical Abstract of the United States, 1986. Physician-to-Population ratios are from Physician Characteristics and Distribution in the United States, 1983 ed., American Medical Association, 1984. Bed-to-population ratios are from Health, United States, 1985, USDHHS Publication No. (PHS) 86-1232, 1985. Medicare Utilization and cost figures are from Medicare Data, unpublished 1983 summary from the Health Care Financing Administration, Office of Statistics and Data Management.

Clinics chose to be in the demonstration group--i.e., to receive the "incident to" waiver--either again to promote NP/PA use or to facilitate or legitimize their own use of NPs/PAs to treat the elderly, either onsite at the clinic or offsite through nursing home or home visits. They chose fee-for-service reimbursement because it was familiar and would require a minimum of administrative change, or, in some cases, out of an ideological preference for fee-for-service. They chose cost-based reimbursement for several reasons. For two that did not have Medicare numbers with regular Part B carriers, it was a way of getting all of their Medicare claims--physician as well as NP/PA--paid by HSSO. For two others, it continued their existing mode of reimbursement with only a change of carrier from Prudential to HSSO. For the rest, it was based on an assessment that the clinic would benefit financially; in at least three cases the clinic was anticipating or already incurring high costs per visit. Two of the cost-based clinics had recently started up or reorganized shortly before the demonstration began; taking into account these, the two that were already being cost reimbursed, and the two that lacked prior Medicare numbers, only limited baseline fee-for-service data were available for studying the impact of changing to cost-based reimbursement.

Differences among the demonstration categories that are important to the evaluation included:

- Extensive NP/PA users chose the demonstration group.
- Higher cost clinics chose cost-based reimbursement, as did some clinics with very low visit rates.
- The least subsidized clinics chose fee-for-service.

Within the demonstration group, cost-based clinics had substantially more Medicare beneficiaries than fee-for-service clinics, as shown below:

	Total Number of Beneficiaries	Average Number per Clinic
Cost-Based Demonstration	5,944	594
Fee-for-Service Demonstration	2,751	212
Control	4,908	491

The high control group figure reflects the influence of the large control clinic specializing in Medicare, with 3,139 beneficiaries.

Effects of the Environment

As Table 2 shows, Tennessee has a larger elderly share of its population than does California, and a higher poverty rate. California has many more physicians relative to population, while Tennessee has many more hospital beds. Overall Medicare utilization and spending are considerably higher in California than in Tennessee.

When claims data for the demonstration were analyzed, it became apparent that State differences predominated over most other differences in Medicare utilization and costs. Investigation of the factors responsible for such differences would aid in predicting nationwide utilization patterns based on the experience of selected States.

In interviews, the clinics cited a number of environmental factors that were engaging their attention and in some cases undercutting the effects of the demonstration. The most important of these, in both States, was the growing availability of physicians combined with pressures to upgrade physician staff. Clinics reported that they were now able to obtain better-qualified physicians at lower cost than in the recent past. Physicians offered the advantages over NPs/PAs of more flexible allocation between routine and complex cases, access to hospital admitting privileges and ability to provide continuity of care to hospitalized clinic patients, and ability to offer on-call coverage after hours. Increased health care competition was making these services increasingly important to clinics that aspired to provide comprehensive programs.

These competitive pressures were intensified by the prospect of diminished PHS and other public subsidies. PHS was also urging its CHCs to become more competitive with private sector providers, attract insured patients, offer the basic primary care specialties on their staffs, and provide inpatient follow-up and on-call coverage.

Some of the clinics reported adding physicians on a contract basis, with the physician continuing to maintain an independent practice. They found that they could get better qualified and more productive physicians in this way than under a salaried arrangement. Several clinics specifically cited the use of contract physicians as an alternative to using NPs/PAs for dealing with inadequate availability or performance of salaried physicians.

The other major development reported by the clinics was movement toward capitation. Both States were active in Medicaid capitation; clinics were either participating in these programs or considering what their participation should be, and some clinics were seeking capitation arrangements which would also involve employee groups and other insured patients. These activities were not incompatible with the demonstration, but they did tend to make management energy less available for demonstration-related activities.

Demonstration Response and Perceived Impact

In evaluation interviews, changes reported by the clinics as a result of the demonstration included the following:

- Clinics with new Medicare numbers were seeing more Medicare patients. Previously they had seen them only sporadically, either free of charge or on a self-paying basis, or with the visits billed to Medicare under the provider number of a clinic physician.

- Several clinics were using NPs/PAs more readily with Medicare patients than they had previously. They felt that the waiver gave them more flexibility in scheduling Medicare patients, in terms of both time, and for multisite clinics, location.

- Three clinics reported providing limited offsite use of NPs/PAs, for health screenings and for nursing home and home visits.

Three clinics reported Medicare outreach activities that were dropped or were unsuccessful--a senior clinic that was abandoned when the NP/PA left and was replaced by a physician, a marketing effort to the elderly that failed due to the inconvenient location of the clinic, and an effort to establish an offsite clinic in senior housing that did not attract users.

Most of the clinics reported little or no response to the demonstration waiver. The reason most often given was that the way a clinic used NPs/PAs was a function of its overall practice approach rather than of the reimbursement policy of individual payors. Clinic NPs/PAs already did or did not see Medicare patients. The next most common reason was that potential response to the waiver had been pre-empted by the increased supply of physicians and the various incentives to use them. Some clinics that had planned to hire NPs/PAs hired or contracted with physicians instead, and departing NPs/PAs were sometimes replaced by physicians. One clinic hired an additional physician during a period of growth in patient volume; when the growth stopped the clinic cut back on the NP's time in order to retain the inpatient and on-call services of the physician.

The clinics did not report any actions taken as a result of the cost-based reimbursement, which served to help "keep the wolf from the door" rather than supporting any new initiatives. Most clinics, especially those experiencing low utilization, did feel that cost-based reimbursement resulted in higher total payments than they would have received under fee-for-service reimbursement, and one clinic considered cost reimbursement absolutely vital to the operation of the clinic. However, another clinic that initially chose cost reimbursement concluded that its rate did not cover costs and switched to fee-for-service, and three clinics were not sure whether or not they were benefiting.

The two clinics that had prior cost-based experience with Prudential said they fared better under the UHCD. Principal reasons given were that the UHCD reimbursement formula based deductibles and coinsurance on charges rather than costs, which improved Medicaid crossover reimbursement; that the

UHCD did not impose a ceiling on cost per visit; and that Medicare bad debt was an allowable cost under the UHCD.

Overall, the effects of the demonstration were perceived to be: (1) a modest increase in Medicare access, and (2) financial help -- in some cases significant -- to several clinics. However, it must be pointed out that the "incident to" restriction could be interpreted to require a level of physician supervision that would not be feasible for some of the clinics. Under this circumstance, a waiver would make a much greater difference.

IV. EVALUATION FINDINGS: CLINIC OPERATIONAL AND PERFORMANCE MEASURES

Review of the cost reports, task analysis checklists, and other clinic data showed that the demonstration had little effect on staffing or task delegation in participating clinics or on clinic performance in terms of cost, productivity, or quality. More than demonstration effects, the clinic operational and performance data show the effects of an increased physician supply and intensified health care competition.

The findings detailed below may be briefly summarized as follows:

- Clinic data support the hypothesis that clinics which already extensively used NPs/PAs tended to choose the demonstration group.
- The data also support the interview findings that increased physician supply inhibited expansion of the NP/PA role.
- There was no significant demonstration-related differences in overall (i.e., not Medicare-specific) cost per clinic visit. The cost-based clinics did have a higher average cost than fee-for-service clinics, but the difference was not statistically significant.
- There also was no significant demonstration-related differences in productivity, measured in terms of visits per provider.
- Overall provider productivity declined during the demonstration period as clinics added physicians without a commensurate increase in visits.
- The data show no evidence that the demonstration either increased or decreased the quality or appropriateness of care.

The tables in this section compare clinics both as they changed over time and cross-sectionally for different clinic groupings during the demonstration. More emphasis is placed on cross-sectional comparisons because of the mixed baseline reimbursement history of the cost-based clinics.

Because of wide variation among the clinics in most of the attributes measured, few of the findings are statistically significant, as determined by Student's t-test. As a caution against over interpreting the results, many of the tables show all-clinic ranges as well as average values.

In the tables, the numbers of clinics shown reporting in the various comparison categories (e.g., cost-based versus fee-for-service) do not always add to the all-clinic totals. This is because some of the category comparisons excluded clinics whose category status was ambiguous. Examples are a clinic nominally in the control group that actually operated under a similar "incident to" waiver under the MHSP, two clinics that switched from the cost-based

demonstration group to the fee-for-service control group and, for the purpose of certain pre-post comparisons, three cost-based clinics that were not previously fee-for-service. For comparisons based on other clinic characteristics, clinics were omitted if data were unavailable to classify them.

Staffing

While clinics with a large proportion of NPs/PAs tended to choose the demonstration participant category, it is difficult to tell to what extent staffing changes between the baseline period and the demonstration period were influenced by their participation. Interview responses suggest that the clinics who increased their NP/PA staff would have done so anyway and simply welcomed the demonstration as being compatible with their existing plans. Whichever explanation applies, the demonstration clinics did increase NPs/PAs more than the control clinics did, as Table 3 shows. Of 17 reporting demonstration clinics, eight added NPs/PAs, while only two of nine control clinics did so. Combined with the fact that the demonstration clinics had more NPs/PAs to begin with, this resulted in a substantially larger number for this group during the demonstration period.

The data suggest that over time this difference would probably have diminished even if the demonstration were permanent. While no major shift away from NPs/PAs in favor of physicians is evident from the clinic data, there was also no significant shift toward greater emphasis on NPs/PAs between the baseline and demonstration periods even within the demonstration group. The increases in NPs/PAs were matched by increases in physicians--though often in different clinics--with the result that the ratio of NPs/PAs to physicians decreased slightly across all clinics and increased by only a small amount within the demonstration group.

As discussed later, utilization generally did not increase with the increase in staff. If utilization continues to remain static over the long term, the clinics may need to cut back on either NPs/PAs or physicians. Interview findings suggest that most will choose to reduce NPs/PAs in order to preserve the greater flexibility and in many cases the access to hospital privileges afforded by the physicians.

Table 3

UHCD Clinic Physician and NP/PA Staffing:
All Clinics and Demonstration Participant Groups

	Number of Clinics Reporting[1]	Number of FTE MDs	Number of FTE NPs/PAs	Ratio of NPs/PAs to MDs
Demonstration Period				
All Clinics	33			
Mean		2.59	1.75	0.87
Range		0.25-12.79	0-11.64	0-4.06
Cost-Based Clinics	12	3.44	2.94	1.13[2]
Fee-for-Service Clinics	19	2.29	1.17	0.73
Demonstration Clinics	21	2.76	2.26	1.10[2]
Control Clinics	9	2.71	0.84	0.38
			p=0.0604	p=0.0080
Change from Baseline				
All Clinics	29			
Mean		+0.24	+0.25	-0.01
Range		-1.90-+6.48	-1.24-+4.78	-2.30-+2.50
Demonstration Clinics	17	+0.42	+0.50	+0.19
Control Clinics	9	-0.03	-0.03	+0.07

Statistical significance was determined using Student's t-test. P values are shown for results that are statistically significant at the 0.10 level.

1. Comparison group numbers reporting do not add to the all-clinic figures because of omission of clinics whose category status was ambiguous. See discussion on page 35.

2. Although there were more MDs than NPs/PAs in the demonstration and cost-based clinics, the larger numbers were concentrated in a few clinics, so that the average NP/PA-to-MD ratio still shows NPs/PAs predominating.

Since nearly all the cost-based clinics were in the demonstration group it is not surprising that NP/PA-to-M.D. ratios in the demonstration period were similar for the cost-based and demonstration group clinics. The cost-based clinics had more FTEs because of the presence of several large clinics in this group.

Aside from the mix of NPs/PAs and physicians, another clinic staffing variable studied was the extent to which clinics used contract as opposed to salaried physicians. Use of contract physicians was measured by the percent of physician compensation reported in the clinic cost reports as being "under agreement." As Table 4 shows, the data tend to support the interview comments citing contract physicians as an alternative to NPs/PAs: the control group clinics used contract physicians more than the demonstration clinics did, and substantially increased this use from the baseline while the demonstration clinics decreased theirs.

When clinics were classified into groupings other than the demonstration categories, the following were among the significant staffing differences that appeared:

- Lower average NP/PA-to-M.D. ratios among larger clinics, PHS-funded clinics, and clinics more actively involved in capitation. Since many of the same clinics are in all three groups, it is not clear which effects are the more important.
- A greater increase in physician staffing among PHS-funded clinics than among other clinics.
- A greater tendency to use contract rather than salaried physicians in clinics that were not PHS-funded and clinics with a relatively low interest in capitation.

These differences appear consistent with interview findings, and they also illustrate the point that participating clinics were subject to many influences besides the demonstration.

Task Delegation

Overall, the self-reported level of clinical responsibility handled by NPs and PAs decreased slightly over the course of the demonstration, although variability was too great for the numbers to be statistically significant. The level of responsibility was measured by identifying those tasks on the task analysis checklist that represent a high level of clinical responsibility and computing the percent of these tasks that NPs/PAs said they performed.

As Table 5 shows, there was little change in the extent to which NPs/PAs performed basic clinical tasks of a kind that are commonly delegated to

Table 4

Use of Contract Physicians in UHCD Clinics:
All Clinics and Demonstration Participant Groups

	Number of Clinics Reporting[1]	Percent of MD Compensation "Under Agreement"
Demonstration Period		
All Clinics	33	
Mean		35.90
Range		0-100
Cost-Based Clinics	12	34.49
Fee-for-Service Clinics	19	31.06
Demonstration Clinics	21	28.03
Control Clinics	9	41.54
Change from Baseline		
All Clinics	29	
Mean		+7.49
Range		-84.88-+97.46
Demonstration Clinics	17	-3.83
Control Clinics	9	+30.92
		p=0.0483

Statistical significance was determined using Student's t-test. P values are shown for results that are statistically significant at the 0.10 level.

1. Comparison group numbers reporting do not add to the all-clinic figures because of omission of clinics whose category status was ambiguous. See discussion on page 35.

Table 5

NP/PA Task Delegation in UHCD Clinics: All Clinics and Demonstration Participant Groups

	Number of Clinics Reporting[2]	Mean Score[1] per Clinic: "Basic" Clinical Tasks	"Advanced" Clinical Tasks (Task Delegation Index)	Technical Tasks	Administrative Tasks
Initial Task Analysis Checklist					
All Clinics	29				
Mean		93.70	50.90	63.10	34.90
Range		37.1-100.0	20.9-77.8	17.9-100.0	0-100.0
Cost-Based Clinics	13	94.24	47.18	55.91	23.08
Fee-for-Service Clinics	16	93.21	53.86	68.94	44.44
					p = 0.0757
Demonstration Clinics	23	97.18	57.91	67.33	37.99
Control Clinics	5	81.68	52.06	47.66	25.82
				p = 0.0765	
Change from Initial to Follow-Up Checklists[3]					
All Clinics	24				
Mean		+0.6	-3.4	-4.35	+11.18
Range		-17.0- +27.1	-31.8- +27.8	-57.8- +38.6	-30.3- +100.0
Cost-Based Clinics	7	-3.13	-8.10	-11.63	+11.73
Fee-for-Service Clinics	12	+0.42	-1.39	+ 0.06	+ 8.23
Demonstration Clinics	19	-0.65	-4.16	- 9.07	+ 3.59
Control Clinics	2	+1.30	-10.10	+37.15	+50.05
				p = 0.0019	p = 0.0405

Statistical significance was determined using Student's t-test. P values are shown for results that are statistically significant at the 0.10 level.

1. Scores are percents derived from (1) multiplying the number of available tasks in each category by the number of responding NPs/PAs, (2) counting the number of times the task is reported to be done by an NP/PA, and (3) dividing the latter by the former.

2. Comparison group numbers reporting do not add to the all-clinic figures because of omission of clinics whose category status was ambiguous. See discussion on page 35.

3. Change is in number of percentage points.

midlevel practitioners; nearly all of the NPs/PAs performed nearly all of these both early and late in the demonstration. However, performance of more advanced tasks--such as removing skin lesions or assessing cardiac arrhythmias--showed a decrease for the clinics as a whole and for each demonstration participant group. This was accompanied by an increase in administrative tasks and, in the few control clinics that had responding NPs/PAs, in routine technical tasks -- such as taking blood pressure and performing EKGs -- that do not require an NP's or PA's level of training.

Clinic cost report data show virtually no change in the proportion of adult medicine visits handled by NPs and PAs--24 percent in the baseline period and 27 percent in the demonstration period across all clinics. For Medicare, NP/PA billings were at their highest towards the end of the first demonstration year and dropped off somewhat in the second year, both in numbers and as a percent of total billings. Toward the end of the demonstration, a few of the clinics stopped submitting bills to HSSO.

As shown in Table 6, demonstration group billings showed NPs/PAs accounting on average for 16 percent of billed office visits, and about 13 percent of total reimbursements to the clinics, over the duration of the demonstration. NPs/PAs were used most often for minimal, brief, limited, and intermediate office visits. Offsite, they were used most for nursing home visits; however, only a total of eight clinics made any offsite use of NPs/PAs.

As Table 7 shows, NP/PA task delegation for Medicare services was substantially greater in California than in Tennessee. NPs/PAs accounted for a larger share of visits, but not of total costs, in fee-for-service clinics than in cost-based clinics.

Most nondemonstration-related differences shown in the clinic task analysis checklists were significant only for specific types of task and did not show clear patterns. However, the checklists did show the following:

- Smaller clinics tended to delegate more responsibility to NPs/PAs.
- Clinics placing high emphasis on NPs/PAs used them for all types of task including not only advanced clinical tasks but administrative and technical tasks as well. This lack of specialization may reflect the fact that most of these are small clinics where everyone does a bit of everything.
- Fewer significant differences among clinic categories appeared in the follow-up checklists than in the initial checklists.

TABLE 6

UNCD Demonstration Clinic Medicare Services
by Provider Type

	Actual Numbers August 1983-July 1985			
	All Providers	NP	PA	Percent NP/PA
Number of Onsite Visits*				
Level I	18,153	3,375	1,124	24.8
Level II	23,808	1,441	1,029	10.4
Level III	3,635	188	169	9.8
Total (including Psych.)	45,657	5,005	2,322	16.0
Total Visit Costs	$1,576,578	$129,784	$77,851	13.2
Costs for Ancillary and Other Onsite Services	$ 64,299	$5,334	$4,506	15.3
Total Costs for Onsite Services	$1,640,877	$135,118	$82,357	13.2
Costs for Offsite Services				
ER	$ 847	$ 26	-	3.1
Hospital	51,130	34	$ 912	1.8
Nursing Home	10,562	1,936	-	18.3
Home	28,553	864	2,857	13.0
Total (including Others)	$ 91,373	$2,907	$3,789	7.3
Total Cost**	$1,732,250	$138,025	$86,146	12.9

*Visit definitions are:
Level I = Minimal, brief or limited visit
Level II = Intermediate visit
Level III = Extended, comprehensive or complex visit.

**Excluding independent laboratory services paid for and billed by the clinics.

TABLE 7

NP/PA As Percent of UHCD Clinic Medicare Services,
by State and Reimbursement Category
(Demonstration group clinics)

	NP/PA As Percent of Total			
	No. of Visits	Costs of Onsite Services	Costs of Offsite Services	Total Costs for Clinic Services
California	27.0	27.0	8.6	24.9
Tennessee	9.2	6.0	2.1	5.9
Cost-Based	14.3	13.2	13.9	13.2
Fee-for-Service	22.8	13.8	4.26	11.8

Use of NPs/PAs with Medicare patients did not show significant nondemonstration differences by type of clinic except for the differences already noted between the two States.

Costs and Economic "Productivity"

Table 8 compares several UHCD clinic cost indicators for the clinics as a whole and by demonstration category. As shown, the figures provide little evidence of a demonstration effect.

When costs that clearly represent services in addition to the primary care visit -- such as laboratory and physical therapy -- are excluded, the UHCD cost per visit across all clinics in the demonstration period averaged $39.93. However, the range was very large, from less than $16 to just under $99. The mean for cost-based clinics was higher than that for fee-for-service clinics, but the difference is not statistically significant. The figure for the demonstration group as a whole was virtually the same as for the control group.

If the "added" services are not excluded, the overall mean cost per visit comes to $47.29. However, inclusion of such services inflates the cost per visit in clinics providing laboratory and other services that do not involve face-to-face contact with a physician or NP/PA, since the visit counts include only such contacts.

Overall, cost per visit increased by about $8 between the baseline and demonstration periods. Control clinics appear to account for a larger share of the increase than demonstration clinics, but the numbers are not statistically significant. Meaningful trend figures are not available for cost-based clinics; of the five that had a stable prior existence, were not cost-based in the baseline period, and supplied data for both the baseline and demonstration periods, one had an exceptionally high baseline cost per visit due to operational problems so that in aggregate the five clinics show a decrease in per-visit cost.

Neither cost per provider nor the provider component of total cost shows statistically significant differences related to the demonstration. Finally, there were no significant differences in overhead as a percent of total costs.

Dollar increases in total costs between the baseline and demonstration periods are too much skewed by clinic size to be meaningfully compared. However, a comparison of percent increases shows no significant differences between demonstration and control clinics in either health care staff costs or total UHCD costs. Data for six cost-based clinics do show significantly smaller increases than for fee-for- service clinics, but the small number and disparate nature of the clinics make this difficult to interpret.

Table 8

UHCD Clinic Costs and Economic "Productivity"

	Number of Clinics Reporting[1]	UHC Cost per Visit, Excluding "Added" Services	UHC Cost per Provider, Excluding "Added" Services ($000)	Overhead as Percent of UHC Cost	Provider Cost as Percent of UHC Cost
Demonstration Period					
All Clinics	33				
Mean		$39.93	$148.7	43.7	27.3
Range		$15.76-98.92	$38.5-367.4	14.2-67.5	10.8-45.9
Cost-Based Clinics	12	$43.56	$135.8	45.7	27.1
Fee-for-Service Clinics	19	36.94	136.8	41.8	28.8
Demonstration Clinics	21	$40.76	$131.5	44.0	27.9
Control Clinics	9	37.57	151.7	42.0	28.0
Change from Baseline					
All Clinics	29				
Mean		+$ 7.73	+ $26.7	+2.9	-2.17
Range		-$46.30- +34.10 (p = 0.0157)	-$140.1- +175.9 (p = 0.0272)	-10.3- +32.5	-39.4- +12.2
Demonstration Clinics	17	+$ 5.19	+ $10.8	+3.3	-4.2
Control Clinics	9	$ 11.52	+ 32.2	+2.6	+2.3

Percent Change from Baseline		Total Health Care Staff Costs	Total UHC Costs
All Clinics	29	+23.9 p = 0.0011	+31.6 p = 0.0009
Demonstration Clinics	17	+28.1	+33.8
Control Clinics	9	+38.8	+41.9

Statistical significance was determined using Student's t-test. P values are shown for results that are statistically significant at the 0.10 level.

1. Comparison group numbers reporting do not add to the all-clinic figures because of omission of clinics whose category status was ambiguous. See discussion on page 35.

Nondemonstration-related cost differences included:

- Higher cost per provider in California clinics and clinics using contract M.D.s extensively.
- A higher overhead component of costs in smaller clinics, California clinics (which include most of the smallest clinics), and non-PHS clinics.
- A greater increase in cost per visit in clinics that increased NP/PA task delegation. This was associated with reduction in visits and seems to be consistent with the lower number of visits per FTE provider reported for NPs/PAs than for physicians.
- Greater percent increases in health care staff costs for PHS-funded clinics, larger clinics, and clinics that reduced task delegation, all three of which group hired above average numbers of physicians. Clinics and PHS-funded clinics also showed significantly higher percent increases in total costs.

These cost figures reflect overall clinic costs for adult medicine services (where clinics were able to separate out other services such as family planning), not costs for Medicare services. Medicare's cost per visit seems to be higher for cost-based clinics than for fee-for-service clinics, as discussed further later.

While UHCD and Medicare costs per visit were used in this evaluation as bases for comparing clinic productivity, neither provides a really satisfactory measure. Neither takes into account possible differences in the content of the visit or skill of the provider, so it is not known whether the different costs are incurred for the purchase of comparable services. The same caveat applies to comparison of productivity on the basis of visits per provider, as discussed in the next section.

Provider "Productivity"

As Table 9 shows, UHCD clinic providers on average (with wide variations) furnished about 4,000 visits per FTE, below the PHS suggested range of between 4,200 and 6,000 visits per FTE physician or midlevel practitioner. The lower rate for NPs/PAs may be attributable to more time spent in each visit or may reflect the fact that in reporting FTEs, the clinics did not usually deduct time spent in administrative activities from the NP/PA total FTEs, although they generally did deduct physician administrative time.

Table 9

UHCD Clinic Visits Per FTE Provider, MD, and NP/PA

	Number of Clinics Reporting[1]	UHC Visits per FTE Provider	MD Visits per FTE MD	NP/PA Visits per FTE NP/PA
Demonstration Period				
All Clinics	33			
Mean		4,036	4,324	3,081
Range		997-5,718	1,374-12,565	835-7,700
Cost-Based Clinics	12	3,522	4,162	2,676
Fee-For-Service Clinics	19	4,020	4,135	3,096
Demonstration Clinics	21	3,479	3,810	2,922
Control Clinics	9	4,696	4,948	2,880
Change from Baseline				
All Clinics	29			
Mean		-236.9	-639.8	+302.9
Range		-5,600-+4,028	-5,488-+4,028	-2,133-+2,643
Demonstration Clinics	17	-477.8	-811.3	+434.1
Control Clinics	9	-171.7	-267.4	-411.3

None of these values are statistically significant at the 0.10 level.

[1] Comparison group numbers reporting do not add to the all-clinic figures because of omission of clinics whose category status was ambiguous. See discussion on page 35.

Demonstration category comparisons show no statistically significant differences in visit rates. However, on average, the control clinics reported somewhat higher total and physician visit rates than the demonstration clinics, and the fee-for-service clinics had slightly higher total and NP/PA visit rates than the cost-based clinics.

Between the baseline and the demonstration period, the average annual number of UHCD visits remained essentially static. In combination with the previously discussed increases in provider staff, this led to a slight overall decline in visits per provider. Of the 18 clinics that increased their number of FTE providers, 12 experienced a reduction in visits per FTE provider. The effect of staff increases was strongest for physicians: of 13 clinics that added physicians, 12 experienced reduced M.D. visits per FTE M.D. and 10 experienced a reduction in total visits per FTE provider. If the clinics want to retain the added physicians for reasons discussed earlier, continued lack of growth in visits would threaten the long-term position of NPs and PAs.

While the differences are again not statistically significant, the demonstration clinics on average showed greater reductions in physician and total visit rates than the control group. This is consistent with the fact that they added more staff; their average number of visits remained essentially unchanged.

The increase in NP/PA visit rates in the demonstration group seems inconsistent with the reduction in physician visit rates. Interview comments suggest the possible explanation that many of the physicians were added more recently than the NPs/PAs and may have had less time to become established.

Significant nondemonstration-related differences in visit rates included:

- Higher total and physician visit rates for clinics using more contract physicians, a finding consistent with interview comments.
- Higher physician visit rates in California. (Total and NP/PA rates were also higher in California, but not by significant amounts.)
- Lower total and physician visit rates among clinics placing "high" emphasis on NPs/PAs. The NP/PA visit rate was lower than either of the physician rates and was about the same in both "high-emphasis" and "low-emphasis" groups.

Changes in visit rates from the baseline showed no significant differences.

Quality and Appropriateness of Care

No evidence was found of any negative effects from the demonstration on the quality or appropriateness of care. Several different approaches were used to test for such effects.

When UHCD mortality rates for the final demonstration year are compared with national data for 1983 from the National Center for Health Statistics, UHCD rates are somewhat higher than national rates for beneficiaries aged 65-74 and slightly lower than national rates for older groups. The higher rate for the younger group probably reflects in part a high proportion of disabled beneficiaries since everyone who was 65 years old in the final year had to be under 65 when the clinics compiled their patient lists and, hence, eligible only based on disability.

For the purpose of comparison, clinic mortality rates were standardized for age and sex. Rates were then compared for cost-based versus fee-for-service clinics, demonstration versus control clinics, high versus low Medicare clinics, high versus low NP/PA emphasis clinics, and California versus Tennessee. Comparisons were tested for statistical significance using Student's t-test. The rate was significantly higher for the Tennessee beneficiaries than for the California beneficiaries -- 65.5 versus 47.0 deaths per thousand. No other differences were statistically significant. In view of Tennessee's lower average income and physician-to-population ratio, it seems possible that the State difference results from a sicker population using this type of clinic as opposed to a private physician. However, this study did not provide data that would permit a test of this hypothesis.

Using Medicare claims data, comparisons were also made of utilization rates and charges per 1,000 beneficiaries for laboratory, radiology, and surgical services, in order to see whether the demonstration was associated with differences suggesting inappropriately high or low utilization. Like the other Medicare claims comparisons described in Chapter V, these comparisons were tested for statistical significance using an approach known as Fisher's least significant difference method from a weighted analysis of variance. The largest differences found were between the States, with California consistently showing higher rates and charges. Clinic category comparisons were made only for California since Tennessee utilization rates appeared to be excessively skewed by the fact that claims data for the cost-based clinics did not report specific procedures performed at the clinics (since payment for all procedures was assumed to be included in the per-visit reimbursement). The comparisons showed no significant differences in surgery. Several category differences were identified in laboratory and radiology services and/or charges, with demonstration group clinics, cost-based clinics, "high-Medicare," and non-PHS-funded clinics showing somewhat higher values on one or more measures. Although statistically significant, these differences were much smaller than the differences between California and Tennessee, and they did not suggest the presence of inadequate or inappropriate utilization.

The contractor administering the demonstration, Technassociates Inc., abstracted and reviewed a sample of ten patient records at each clinic for appropriate treatment of two "tracer" conditions: adult onset diabetes mellitus and hypertension. Each record was rated by a nurse practitioner both explicitly (i.e., against a set of defined criteria) and implicitly (based on the reviewer's clinical judgment). Ratings were reviewed by a physician. Although ratings varied among the clinics, there were no statistically significant differences either between cost-based and fee-for-service clinics or between demonstration and control clinics in the percent of ratings that were "adequate" or "very adequate." The only significant differences that appeared were:

- A higher percent of adequate or very adequate ratings in clinics that were more actively interested in capitation.

- A lower percent of adequate ratings in clinics using more contract physicians. In view of clinic comments about the higher capabilities of these physicians, this finding may represent inadequate attention to the medical records rather than inadequate care provided to patients.

Finally, treatment protocols used by clinic providers were rated by a Registered Nurse on the basis of criteria relating to contents, organization, and the presence of useful references. The percent of protocols rated "excellent" or "outstanding" was significantly higher in the demonstration group clinics and the "high NP/PA emphasis" clinics than in the control clinics and the "low NP/PA emphasis" clinics. This appears reasonable if one assumes that practices which delegate significant clinical responsibility to midlevel practitioners have more need of written treatment standards or guidelines.

V. EVALUATION FINDINGS: MEDICARE COSTS, UTILIZATION, AND ACCESS

Costs to Medicare for health care obtained from all sources by UHCD beneficiaries were consistent with overall Medicare experience. As was the case with Medicare overall, costs differed greatly between the States. These differences were accompanied by different demonstration effects in the two States. Principal findings were as follows:

- Systemwide Medicare costs were:
  - About 50 percent higher in California than in Tennessee.
  - In California, but not Tennessee, higher for cost-based than fee-for-service beneficiaries.
  - In California, higher for control group than demonstration group beneficiaries (demonstration versus control comparisons not meaningful in Tennessee).
- Cost differences reflected differences in utilization of inpatient, institutional and home care services; ambulatory care showed no demonstration-related differences.
- Utilization differences between the States paralleled resource availability, with greater hospital utilization in Tennessee where the supply of hospital beds is greater and greater utilization of other services in California where the physician supply is greater.
- Cost per clinic visit was higher for cost-based than fee-for-service clinics although lack of data on visit content for the cost-based clinics prevented an exact comparison.
- In Tennessee only, the proportion of total ambulatory care services obtained from the patient's "own" clinic was higher for the cost-based clinics than for the fee-for-service clinics. With this exception, the demonstration does not appear to have affected health care access as measured by the number of beneficiaries using the clinics or the extent to which beneficiaries preferred their "own" clinics.
- There was limited evidence that higher "own" clinic costs resulted in lower systemwide costs in Tennessee and higher systemwide costs in California.

The frequent State differences underscore the fact that the UHCD findings cannot be the basis of nationwide conclusions or predictions.

Total Costs and Major Cost Components

Total Medicare claims information, including beneficiary-specific Part A claims, was available for UHCD beneficiaries during the final year of the demonstration, from August 1984 through July 1985. During that year, Medicare spent an estimated $35.9 million on behalf of these beneficiaries, or $3,106 per beneficiary in California and $2,093 per beneficiary in Tennessee when the figures are standardized for age and sex. The inpatient hospital component (estimated using a formula since hospitals were in the transition to the Prospective Payment System and payment data were not comparable) came to $1,863 in California and $1,266 in Tennessee. Converted to an estimated cost per person served, these costs are very similar to overall Medicare experience, as Table 10 shows.

In keeping with Medicare experience generally, costs were higher for the under-65 (disabled) beneficiaries than for beneficiaries between ages 65 and 75, and for the 85-plus age group than for all other groups over 65. They were higher for men than for women, also reflecting general Medicare experience.

Statistical comparisons between different clinic categories were made for: (1) costs for inpatient, institutional, and home services, (2) costs for ambulatory services, and (3) total amounts reimbursed by Medicare after deductibles and coinsurance. The analysis first looked at differences without regard to State, but differences between the States themselves were so large they they dominated other effects, and the analysis was refocused to look at each State separately.

As Table 11 shows, patients of the cost-based clinics in California incurred significantly higher total costs than patients of the California fee-for-service clinics, with the difference accounted for mostly by a higher inpatient/institutional/home component. In Tennessee, on the other hand, cost-based and fee-for-service values were very close together.

Patients of demonstration and control clinics could not be meaningfully compared within Tennessee, which had only one control clinic. Across the two States and within California, there were no significant difference between demonstration and control group beneficiaries, either in total costs or in the amounts attributable to inpatient and home versus ambulatory services. Within the fee-for-service category, however, California control group beneficiaries showed significantly higher total costs than demonstration group beneficiaries. Inpatient/institutional/home costs were also higher for the control group by near-significant amounts. This suggests that the cost versus fee difference in California would be larger than Table 11 shows if control clinics (all fee-for-service) were excluded. Costs for ambulatory services did not differ significantly by demonstration category either across the States or within either State.

Table 10

UHCD and Overall Medicare Reimbursement per Person Served[1]

	California	Tennessee
UHCD, August 1984-July 1985[2]		
Total	$ 3,325.66	$ 2,460.94
Inpatient Hospital	1,995.19	1,488.34
Medicare 1983, Inflated to Year End 1984		
Total	$ 3,489.57	$ 2,829.84
Inpatient Hospital	2,025.45	1,883.84

[1]This and other comparisons with Medicare use statistics from Medicare Data, unpublished 1983 summary from the Health Care Financing Administration, Office of Statistics and Data Management. "Persons served" refers here to persons who received any type of Medicare benefit (Part A or B) in 1984.

[2]The exact number of UHCD persons served was not available, but a close estimate was obtained using the eligible population together with available figures on number of persons who showed no claims and number of deaths.

Table 11

Costs to Medicare for UHCD Beneficiaries:
Total and Demonstration-Related Comparisons

	Cost per 1000 FTE Beneficiaries, 8/84-7/85		
	Inpatient/ Institutional/ Home Services Charges	Ambulatory Service Charges	Total Cost to Medicare After Cost Sharing
All Clinics	$ 2,235,823	$ 744,335	$ 2,730,456
California	2,480,168	909,776	3,078,640
Tennessee	1,771,464	429,928	2,068,761
Demonstration Effects: California			
Cost-Based	$ 2,701,205	$ 990,875	$ 3,360,775
Fee-for-Service	2,277,297	924,509	2,900,454
	p = 0.0802	N.S.	p = 0.0655
Demonstration	$ 2,361,677	$ 919,143	$ 2,973,778
Control	2,447,779	993,658	3,127,415
	N.S.	N.S.	N.S.
Demonstration (FFS only)	$ 2,024,639	$ 990,875	$ 3,360,775
Control	2,490,557	924,509	2,900,454
	(p = 0.1064)	N.S.	p = 0.0655
Demonstration Effects: Tennessee[1]			
Cost-Based	$ 1,834,546	$ 379,195	$ 2,090,291
Fee-for-Service	1,710,273	382,936	1,942,550
	N.S.	N.S.	N.S.

All-clinic and state values are actual unadjusted rates per 1000. Category comparisons within the states are based on Fisher's LSD method from a weighted analysis of variance. Clinic estimates are adjusted for age and sex differences and weighted by clinic beneficiary population. P values are given for results that are statistically significant at the 0.10 level.

N.S. = Not significant.

1. Demonstration vs. control comparisons not meaningful in Tennessee, where there was only one control group clinic.

Utilization

Table 12 shows how beneficiaries in the two States compared with respect to several measures of utilization. The numbers shown are actual rates per thousand, without demographic adjustments. As shown, dollars per thousand were consistently higher in California. Quantities of service per thousand were also higher in California for all except inpatient hospital services. The data seem consistent with the way health resources are distributed in the two States; California has one of the highest physician-to-population ratios in the country (258 per 100,000) and one of the lowest hospital bed-to-population ratios (3.3 per 1,000), while the reverse is true in Tennessee (172 physicians per 100,000; 5.7 beds per 1,000). Figures for laboratory procedures and to some extent radiology also are understated because the claims data for the cost-based clinics did not record onsite services other than office visits.

Cost per Visit

Table 13 estimates the comparative cost per visit for demonstration group cost-based and fee-for-service clinics by dividing the total Medicare reimbursement for onsite services by the number of office visits billed. As shown, the cost-based figure is higher.

This comparison is not entirely reliable because: (1) the method of reimbursement encouraged cost-based clinics to use only office visit procedure codes when submitting claims, while fee-for-service clinics could use alternatives, such as a more specialized procedure code; (2) the fee-for-service amount includes a physician component which is based on charges rather than on amount paid after deductible and coinsurance; and (3) the lack of procedure detail for the cost-based clinics prevents a determination of, for example, how the number of ancillary procedures included in each cost-based visit payment compares with the number billed separately by the fee-for-service clinics.

With respect to the first issue, cost-based clinics did bill significantly more visits than fee-for-service clinics. A telephone poll of six fee-for-service clinics found that they usually do use an office visit code wherever applicable, but one clinic did say that there were times when the presence of a visit code would lower the reimbursement for, for example, a minor surgical procedure, so that the clinic would omit the visit code and use only the other procedure code. However, the effect of this difference would be to undercount fee-for-service visits and, therefore, overstate per-visit costs, which are already estimated to be lower than those in the cost-based clinics.

Table 12

UHCD Beneficiary Utilization and Costs: Selected Services

	California	Tennessee	Total
Quantity per 1000			
Office Visits (all locations)	7,290	5,055	6,576
Ambulatory Laboratory Procedures[1]	4,748	2,319	3,992
Ambulatory Radiology Procedures[1]	1,606	701	1,352
Inpatient Hospital Days	2,622	3,448	2,907
Surgical Procedures[1]	425	225	356
Nursing Home Days	509	396	470
Costs per 1000			
Office Visits	$ 226,512	$ 159,932	$ 205,164
Ambulatory Laboratory Procedure[1]	87,028	45,346	73,642
Ambulatory Radiology Procedures[1]	115,987	34,393	92,788
Inpatient Hospital Days	1,842,873	1,254,584	1,640,044
Surgical Procedures[1]	264,080	92,719	204,998
Nursing Home Days	30,692	15,915	25,597

[1]Excludes services provided onsite by cost-based clinics.

Rates are actual, unadjusted rates per 1000 beneficiaries.

Table 13

Medicare Cost per Visit:
Cost-Based and Fee-for-Service Demonstration Clinics

	Cost-Based	Fee-for-Service
Onsite Visits Billed	36,186	9,471
Cost of Onsite Visits	$1,388.027	$ 188,550
Cost of Ancillary and Surgical Procedures Onsite	19,222[1]	45,077
Total Cost of Onsite Services	1,407,249	233,627
Visit Cost/Vist	38.36	19.91
Total Onsite Cost/Visit	$ 38.89	$ 24.67[2]

[1]This figure consists mainly of fee-for-service payments for services provided after the starting date of the demonstration but before all the cost-based clinics had joined.

[2]The actual fee-for-service amount is slightly lower because the physician component as shown is based on charges including deductibles and coinsurance.

The presence of deductibles and coinsurance also has the effect of overstating fee-for-service costs, and this also increases confidence in the conclusion that they are lower than those of cost-based clinics. However, the third issue, relating to comprehensiveness of service, is more of a problem since there is no way to tell in which direction the comparison may be skewed by differences in the ancillary services provided. A firm determination of relative cost per visit in the two settings would require complete information on the services provided as well as on the amount reimbursed.

Comparison of demonstration group and control group costs for all fee-for-service clinics shows a higher Medicare cost per visit in the control group, due solely to the effect of one clinic with a very large number of beneficiaries. With that clinic excluded or with the average calculated by clinic rather than by patient, no difference in cost per visit appears between the two groups.

Use of "Own" Clinic Services and Health Care Access

The demonstration seems to have had relatively little effect on the extent to which UHCD beneficiaries used their clinics as their regular source of care or on the overall impact of the clinics on beneficiary access to care. Geography and clinic size appear to have had a more important influence.

Proportion of Services Received from Beneficiary's "Own" Clinic

As Tables 14 and 15 show, patients of the UHCD clinics during the final demonstration year collectively made about 40 percent of their office visits to their "own" clinics and incurred about 17 percent of their total ambulatory service costs at the clinics. The clinics provided more visits to these beneficiaries than did hospital outpatient departments or emergency rooms, but fewer than physicians' offices. Total Medicare charges including visits and ancillary services were highest for physicians' offices, next to highest for hospital OPDs/ERs, and lowest for the clinics.

All three sources of care provided brief or limited office visits and intermediate office visits (Level I and Level II visits in the tables), but physicians' offices provided a substantially higher proportion of comprehensive and extended visits (Level III) and psychiatric visits. The tables understate the number of ancillary procedures provided at the clinics, since in the cost-based clinics these were covered by the per-visit charge and are not captured in the data. The data are complete for fee-for-service clinics (demonstration and control) and show that the clinics provided more laboratory tests than OPDs/ERs but fewer than independent laboratories or physicians' offices.

Table 14

Ambulatory Care Services Received by UHCD Beneficiaries, By Source,
August 1984 through July 1985

Type of Service	Number of Units of Service: Own Clinic	Other Clinic Or MD Office	OPD/ER	Independent Laboratory	All Locations	Percent Own Clinic
Office Visits[1]						
Level I	18,319	19,381	1,609		39,309	46.60
Level II	13,094	15,331	1,967		30,392	43.08
Level III	2,131	7,026	521		9,678	22.02
Psych	190	1,114	86		1,390	13.67
Unspecified			3,573		3,573	-
Total	33,734	42,852	7,756		84,342	40.0
Laboratory Tests[2]	6,713	16,201	8,514	17,288	48,716	13.78
Radiology Procedures[2]						
Unspecified			3,032		3,032	-
Diagnostic	728	5,733	4,861	8	11,322	6.42
Therapeutic		988	430	2	1,418	-
Total	728	6,721	8,323	10	15,772	4.61
Ambulatory Surgical Procedures[2]	519	5,992	1,666		8,177	6.35
Other Outpatient Medical Services[2]	1,780	12,644	5,333	522	20,279	8.8
Total	43,474	84,410	31,592	17,820	177,296	24.52

1. Level I = Minimal, brief, or limited visit
Level II = Intermediate visit
Level III = Extended, comprehensive, or complex visit.

2. The "own" clinic component of these costs is not included for cost-based clinics.

Table 15

Ambulatory Care Costs Incurred by UHCD Beneficiaries, By Source,
August 1984 through July 1985

Type of Service	Charges in Constant 1985 Dollars: Own Clinic	Other Clinic Or MD Office	OPD/ER	Independent Laboratory	All Locations	Percent Own Clinic
Office Visits[1]						
Level I	$468,799	$425,740	$32,831		$ 927,370	50.55
Level II	492,370	464,758	74,748		1,031,876	47.72
Level III	75,663	414,025	27,462		517,150	14.63
Psych	4,520	35,820	1,830		42,170	10.72
Unspecified			118,665		118,665	-
Total	$1,041,351	$1,340,343	$255,536		$2,637,231	39.49
Laboratory Tests[2]	$64,499	$151,299	$488,820	$ 226,877	$931,495	6.92
Radiology Procedures[2]						
Unspecified			$381,821		$381,821	-
Diagnostic	$34,329	$375,741	149,424	$ 301	559,494	6.13
Therapeutic		115,155	27,596	188	142,751	-
Total	$34,329	$490,896	$558,841	$ 489	$1,084,066	3.17
Ambulatory Surgical[2] Procedures	$35,700	$855,400	$835,033		$1,726,133	2.07
Other Outpatient Medical Services[2]	$32,087	$398,142	$213,294	$ 3,537	$647,040	4.96
Total	$1,207,966	$3,236,081	$2,351,524	$230,903	$7,026,474	17.19

1. Level I = Minimal, brief, or limited visit
   Level II = Intermediate visit
   Level III = Extended, comprehensive, or complex visit.

2. The "own" clinic component of these costs is not included for cost-based clinics.

Relatively few radiology and surgery procedures were performed at the clinics. Physicians' offices were in the lead, after independent laboratories, in laboratory tests and also led in ambulatory surgery and "other medical services." They were tied with OPDs/ERs and the predominant source of radiology procedures.

The "own" clinic share of ambulatory visits and costs was higher in Tennessee than in California (Table 16), a finding consistent with the lower physician-to-population ratio in Tennessee. In Tennessee only, the "own" clinic share was also higher for cost-based than fee-for-service clinics. California cost-based clinics did not show higher "own" clinic utilization than the clinic population as a whole.

Besides location in Tennessee, beneficiary population size seems to have been the most important determinant of whether Medicare patients obtained a high proportion of care from their own clinic. The individual clinics whose beneficiaries made a higher-than-average proportion of their ambulatory visits to their "own" clinic consisted of:

Two cost-based Tennessee clinics with large (more than 700) beneficiary populations.

A cost-based California clinic specializing in the elderly.

Two California control clinics with large beneficiary populations.

Four of the six remaining Tennessee clinics, all with small beneficiary populations.

Only one clinic with a large beneficiary population (cost-based, in California) had a below-average proportion of visits.

Onsite, Offsite, and Total Services by "Own" Clinic

As Table 17 shows, the average annual number of visits billed by the UHCD clinics per 1,000 beneficiaries over the life of the demonstration was higher in Tennessee than in California and for cost-based than for fee-for-service clinics. California clinics and fee-for- service clinics billed more offsite services; however, most clinics billed very few offsite services other than impatient hospital visits. Average total costs per 1,000 beneficiaries for "own" clinic services, in 1985 dollars, were substantially higher for cost-based clinics and somewhat higher for Tennessee than for California clinics. This is consistent with the high proportion of total ambulatory care services obtained at the patients' "own" cost-based clinics in Tennessee.

Table 16

"Own" Clinic Percent of Ambulatory Care Costs and Office Visits for UHCD Beneficiaries

	Percent of Total Ambulatory Costs	Percent of Office Visits
All Clinics	17.9	40.0
California	11.52	31.86
Tennessee	44.76	62.02
Cost-Based (California)	11.15	27.80
Cost-Based (Tennessee)	54.30	67.54
Fee-for-Service (both states)	11.51	33.11

Table 17

"Own" Clinic Services and Costs by State and Type of Reimbursement,
August 1983 through July 1985

	No. of Office Visits	No. of Selected Offsite Services			Costs		
		Inpatient Hospital	Nursing Home	Home	Onsite	Offsite	Total
All Clinics	2,825	357	17	41	$93,537	$21,913	$115,450
California	2,566	471	24	60	93,537	21,913	115,450
Tennessee	3,346	121	4	3	127,030	2,240	129,270
Cost-Based Demonstration Group	3,398	103	3	15	132,163	2,738	134,901
Fee-for-Service Demonstration Group	1,759	130	71	167	43,402	11,566	54,968

Evidence Regarding Health Care Access

Four clinics that previously lacked Medicare provider numbers received Medicare numbers for the first time under the demonstration and began seeing Medicare patients on a regular basis. They indicated that they had not previously qualified for Medicare numbers because of their emphasis on NPs/PAs and the "incident to" provision. They did sometimes see Medicare patients, either free of charge or billed through the provider number of a clinic physician, but participation in the demonstration with the "incident to" waiver made a significant difference.

With this exception, the demonstration does not seem to have generated a large increase in the number of Medicare patients using the clinics. The updated patient lists submitted during the first demonstration year show an increase of only about two-thirds over the initial lists, but since the lists were based on patients visiting the clinic within the past 6 months, it is reasonable that many existing users of the clinic would not have been captured on the first list. Monthly clinic billings to HSSO fluctuated between about 1,500 and 3,000 claims for the cost-based clinics and between about 100 and 300 for the fee-for-service clinics, showing no clear pattern except that the fee-for-service billings diminished in the last 2 months of the demonstration. During site visits and in telephone interviews, clinics said they perceived little impact from the demonstration, and several reported on efforts at outreach to Medicare patients which had not been successful.

The proportion of total care provided by the patient's "own" clinic provides another potential measure of access. As discussed earlier, variations in this measure appear more related to the health system environment in Tennessee and to the size of the clinic beneficiary population than to any feature of the demonstration.

Lack of Part A claims data for the baseline period--and resultant incomplete information on beneficiary visits to hospital outpatient departments and emergency rooms--prevented a before-and-after comparison of the "own" clinic share of total care to see if it increased more in either demonstration group or cost-based clinics. However, a comparison of data for "own" clinic services only (Table 18) shows that overall utilization remained quite static. Among services provided onsite, the shift to more visits and fewer other services probably reflects the change in billing for the cost-based clinics rather than a change in the actual services provided.

Because the baseline period for claims data was only 6 months, there are insufficient data to permit statistically meaningful pre-post comparisons for subgroups of clinics. However, the available numbers point to a slight decrease

Table 18

"Own" Clinic Services to UHCD Beneficiaries:
Baseline vs. Demonstration Period

	Rate per 1000 Beneficiaries, Annualized	
	Baseline	Demonstration Period[1]
Office Visits	2,172	2,972
Other Onsite Services	2,529	1,160
Inpatient Hospital Services	398	434
Other Offsite Services	38	63
Costs: (in 1985 dollars)		
Onsite	$116,206	$111,933
Offsite	14,429	18,439
Total	$130,635	$130,372

[1] Values differ from those in Table 17 because some of the clinics that were included in Table 17 did not have baseline data and are therefore excluded here.

rather than an increase in both onsite and offsite services provided to listed beneficiaries between the two periods.

The relationship between "own" clinic use and total health care costs does not show a consistent pattern. In California, patients of the three clinics that showed above-average use of "own" clinic services had total systemwide costs that were significantly, though not dramatically, higher, than those of patients of other clinics. More use of the clinic seemed to generate more use both of other ambulatory care services and of inpatient and institutional services. In Tennessee this did not occur; in fact the Tennessee clinic with the highest "own" use rate showed total beneficiary costs below the State average. The difference may be partly attributable to the fact that the California group included the two clinics in the demonstration that specialized in elderly patients. It may be that this type of clinic is more oriented toward specialist and inpatient use than clinics whose principal clientele is younger. The study data do not permit conclusions as to whether this represents overutilization or whether clinics that are less accustomed to Medicare patients may undertreat them.

VI. THE MUNICIPAL HEALTH SERVICES PROGRAM

Although the MHSP was broader in scope than the UHCD and did not address exactly the same questions, it is described here because it did involve urban clinics as central participants and its provisions included both cost-based Medicare reimbursement and a waiver of the Medicare "incident to" requirement. The experience of the MHSP is, therefore, of interest to the UHCD evaluation and to examination of the Congressional questions relating to Medicare reimbursement.

The MHSP was a comprehensive effort by five municipalities to develop coordinated systems of health care for traditionally underserved population groups. Its provisions included not only Medicare reimbursement changes similar to those of the UHCD but also substantial grants to participating cities, increased Medicare benefits with emphasis on prevention and primary care, some increases in Medicaid benefits, and specific performance requirements and targets linked to the grant assistance. Evaluation studies found that the MHSP reached most of its target population groups and improved health care utilization by these groups without increasing overall health care costs. It improved productivity and reduced inflation-adjusted costs in participating health centers. It reached a relatively small Medicare population, but, for this group, it significantly lowered Medicare hospital utilization and overall Medicare costs. The studies did not pinpoint which of the many organizational and reimbursement features of the program were most responsible for the observed results.

Program Description

The MHSP was a demonstration project initiated in 1978 by the Robert Wood Johnson Foundation and co-sponsored by the U.S. Conference of Mayors, the American Medical Association, and HCFA. It was conducted in five major cities: Baltimore, Cincinnati, Milwaukee, St. Louis, and San Jose. It was originally expected to conclude in 1983 or 1984 but has been extended through 1989. The evaluation studies, however, primarily reflect experience to 1983.

The MHSP was designed to show whether city governments, working with public hospitals and community-based health centers and building upon other existing resources, could improve the health care received by traditionally underserved urban population groups. The program sought to establish networks of community-based health centers to replace the hospital outpatient department or emergency room as the source of primary ambulatory care for these groups and to create linkages with public hospitals that would improve the continuity between ambulatory and inpatient care. The overall aim was to provide coordinated systems of care which would improve health care access, continuity, and patient satisfaction, while eliminating some of the high costs associated with the more fragmented traditional array of health services.

The participating cities each received approximately $3 million in Johnson Foundation grants; grants were nominally for the period 1979-1983, but cities could continue to spend any previously unspent amounts until 1985. In addition, HCFA granted waivers of Medicare reimbursement requirements and approved similar Medicaid waivers in the five States involved. Under the Medicare waivers, Medicare benefits were substantially expanded for beneficiaries who obtained care from the MHSP health centers. The range of covered services was expanded to include the following preventive and other services not ordinarily reimbursed by Medicare: dental services (including dentures), podiatry, prescribed drugs, immunizations, comprehensive physical examinations, and optometry (including 50 percent of the cost of eyeglasses). Patient deductibles and coinsurance were eliminated. The health centers were reimbursed on a cost basis. The "incident to" requirement was waived for NPs/PAs and several other categories of ancillary health professional. Provisions of the State Medicaid waivers varied depending on the nature of existing Medicaid programs.

To qualify for the Foundation grants, each city was expected to provide primary care services through three or more health centers and to serve at least 75,000 people. Services must include adult medicine, pediatrics, obstetrics/gynecology, and the kinds of preventive service normally provided through city health departments, such as immunizations. The cities were to try to establish working relationships between the centers and public hospitals whereby center physicians could admit and attend their patients in the hospital.

Cities had to find their own sources for any capital needed to start up health centers. They were required to bill and collect for health center services not covered by Medicare or Medicaid. To qualify for continued Foundation funding, they had to increase patient visits and provider productivity, with a target of 4,500 annual visits per FTE physician and 2,250 per FTE NP or PA. Cost per visit must not exceed two-thirds of the cost of a visit to a municipal hospital outpatient department. Foundation funds could not be used to cover more than a third of a health center's annual operating deficit.

The program's administration was located at New York Hospital-Cornell Medical Center during the planning stage, but had been relocated to the Johns Hopkins Hospital by the time the five participating cities were chosen. Two separate evaluation contracts were let. HCFA and the Robert Wood Johnson Foundation jointly sponsored an evaluation of the program's impact by the Center for Health Administration Studies, University of Chicago (directed by Ronald M. Andersen and Gretchen V. Fleming), and the Foundation in addition sponsored an assessment by the Conservation of Human Resources, Columbia University (directed by Eli Ginzberg), of organizational and financing changes resulting from the cities' participation.

Implementation Experience

In implementing the program, the cities used various combinations of direct service provision and contracts with existing providers. A total of 22 health centers participated in MHSP, of which 11 were newly established under the demonstration. Three centers closed, leaving 19 in operation in 1983.

Overall, the implementation experience was positive. Each year, the number of visits to MHSP centers increased, and while the number of centers approximately doubled, the number of visits increased more than fourfold, reaching 451,440 in 1982-1983. Provider productivity increased so that the target levels were met by two of the cities and nearly met by the other three. Cost per visit remained constant at about $53; when adjusted for inflation, however, this represents a decrease of 32 percent in real terms. The average cost of a health center visit was only 38 percent of the average cost of a hospital outpatient department visit. The centers were able to halve their operating deficits, in aggregate from 25.7 percent to 12.8 percent of revenues.

The centers initially reported difficulty in attracting physician staff. However, by 1981 all five cities were finding physicians readily available, an experience consistent with that of the UHCD. The MHSP evaluations did not yield information on the nature and extent of health center use of NPs/PAs; unlike the UHCD this demonstration did not have as one of its objectives the testing of an expanded role for NPs/PAs, and the "incident to" waiver was not highlighted as a particularly important part of the program.

The program proved less successful than had been hoped in building linkages between the health centers and the public hospitals so that center physicians could follow their hospitalized patients. Of the five cities, only Cincinnati was able to develop some of the desired coordination. On the other hand, community hospitals showed interest in cooperating with the program, and activities to build linkages with them have continued.

The program also did not market as successfully as hoped. Despite the increase in visit rates, it did not succeed in reducing utilization of outpatient clinics and emergency rooms in the participating cities. Patient recruitment was especially low among the elderly, in spite of the advantageous Medicare provisions.

Despite the limited impact on overall health care utilization patterns or the structure of the delivery system in the cities, the Columbia evaluation group concluded that the MHSP had successfully demonstrated the ability of local governments to put together a comprehensive array of primary care preventive and treatment services that can provide the urban poor with more integrated and lower-cost care than is available from hospital outpatient departments and emergency rooms. In addition, it demonstrated the feasibility and desirability of providing the major portion of these services through neighborhood health centers.

As the end of the MHSP grant funding approached participating health centers faced the challenge of reducing their dependence on external subsidies. To help the centers make the transition to financial self-sufficiency, HCFA offered a one-year extension of the Medicare waivers to cities interested in working with the health centers, Health Maintenance Organizations, community hospitals, and other organizations to develop prepaid, capitated services to MHSP users. Four of the five cities (St. Louis being the exception) took advantage of this offer. In 1985, Public Law 99-190 extended the demonstration another year, to the end of 1986, and subsequently Public Law 99-272 has extended it for 3 additional years, through December 1, 1989. The Medicare waivers will remain in effect throughout this period.

Impact on Health Care Use, Access, and Costs

Evaluation Methodology

The University of Chicago evaluation of the MHSP relied primarily on a survey methodology. In each of the five cities, one of the MHSP health centers was selected as the focus of the evaluation, and a survey sample was drawn from the service area of that center as determined by patient origin studies or, in the case of newly established centers, estimates of where center patients were likely to reside. A baseline and a follow-up telephone survey were conducted with families in the survey sample, asking about their use of health services during a recall period from December 1978 to July 1980 in the baseline survey and from June 1981 to January 1983 in the follow-up. Questions concerned the family members' usual source of care, utilization of services during the past year, levels of illness, insurance coverage, convenience and satisfaction, total hospital bills, and out-of-pocket health care costs, as well as demographic and social characteristics. Health care costs not covered in the interview were estimated subsequently using algorithms based on utilization and insurance coverage.

Interviews lasted about 45 minutes and were held with the family member most knowledgeable about the family's health care use. This individual was asked to respond for up to five family members. In all, data were obtained for about 2,500 members of about 1,000 families in each of the five cities. For the purpose of analysis, individuals were classified by "user status" -- i.e., whether they were predominantly users of an MHSP center, a public hospital or other public clinic, another type of hospital, a private physician, or no source of care. The categorization was based on the reported usual source of care, or if none was reported, on the source most frequently used during the recall period for the survey.

Because of the relatively small number of Medicare users of the MHSP, the surveys yielded only limited information on Medicare impact. To learn more, a separate study was conducted which examined claims data from the Medicare Statistical Files for all identifiable Medicare users of either the MHSP waivered services or public hospitals from specified zip codes, as well as a sampling of other Medicare beneficiaries in the same zip codes. The records were studied to determine whether the program attracted beneficiaries with

special characteristics and to assess the impact of the waivers on utilization patterns and total costs.

Overall Impact

Listed below are the major evaluation questions addressed by the surveys, with the findings concerning each. Findings from the special Medicare study are given in the next section.

Question 1: Did the MHSP reach the groups it was intended to serve?

1a. Did it serve communities with need? Yes: The population of MHSP communities had lower incomes, a higher proportion of minorities, a higher proportion of persons with public insurance only (though not of persons with no insurance at all), and a higher proportion with either no regular source of care or an outpatient department or emergency room as the regular source, than is true for the U.S. population as a whole.

1b. Did it reach people without adequate sources of care? Apparently only to a limited degree: Persons who "joined" the MHSP between the baseline and follow-up surveys differed only to a small degree from the community as a whole with respect to previous source of care. A slightly higher proportion of "joiners" (19 percent versus 15 percent) had no prior regular source of care; a more significantly higher proportion (32 percent versus 23 percent) used an outpatient department or emergency room. Almost half used a physician, compared to 62 percent in the community.

1c. Did it reach people with special needs? Yes, in the case of children, minorities, and the publicly insured or uninsured; no, in the case of the elderly or those in poor health or concerned about health. Children under the age of 17 accounted for 50 percent of MHSP users compared to 30 percent of the community. The figures for minorities, including blacks and Hispanics, were 43 percent compared to 26 percent (though one health center had a lower proportion of minorities than did the community), and those for the publicly insured or uninsured 58 percent versus 29 percent. However, the proportion of elderly persons was about equal for MHSP and the community across the five cities and below the community level in three of the cities, where the preferred source of care for the elderly was a physician. There was no difference between MHSP and the community with respect to persons in poor health or concerned about health.

Question 2: Did MHSP improve access?

2a. Did it improve utilization patterns? Apparently yes: MHSP users had a significantly higher ratio of primary care to all ambulatory visits than the community. Also, though the differences are not statistically significant, they showed slightly more ambulatory visits and fewer hospital days per capita.

2b. Did users receive appropriate care? Mostly yes, but not necessarily superior care: MHSP users received more health education than physician users (and more than users of all sources of care in two of the cities), but they saw the same provider less often than did physician users. Both MHSP users and physician users showed a more appropriate number of visits for a given set of symptoms than did users of other sources of care. The frequency of physical examinations was the same for MHSP users as for others.

2c. Were they satisfied with their care? Less so than "other hospital" users and physician users. Areas of less satisfaction were appointment waiting times, other waiting times, provider interactions, and an overall satisfaction rating.

Question 3: Did MHSP reduce costs?

3a. Did it reduce ambulatory cost per visit? Not really: MHSP users incurred lower ambulatory care costs from all sources than did public facility users, but higher costs than physician users. Looking at costs separately by place of care, the MHSP centers cost less than hospital-based clinics but more than freestanding public clinics so that on balance "public facilities" cost only slightly more than the centers.

3b. Did it reduce overall health care expenditures? Not conclusively: Except for the lower cost of ambulatory care for MHSP users than for outpatient department and emergency room users, the only difference noted was a statistically insignificant lower inpatient hospital cost for MHSP users than for hospital or physician users. A larger number of observations would probably be needed to confirm any statistically significant difference.

On the other hand, the program did not increase costs. This is noteworthy in view of the added coverage offered.

3c. Did it reduce costs to public payors? Yes, even taking into account the added cost of the expanded coverage: Medicaid incurred lower costs for outpatient department and emergency room visits and (though not statistically significant) inpatient hospital care, and Medicare experienced a sufficiently large reduction in inpatient costs to more than offset significantly higher costs for ambulatory care. Despite the limited number of observations reflected in this Medicare finding, it was confirmed by the special Medicare study, as indicated below.

Findings Regarding Medicare

The special study compared Medicare claims data for "waiver users" versus other Medicare beneficiaries in the service area, with a "waiver user" defined as any beneficiary who had ever used a waiver benefit. Principal findings were:

- Demographic and access-related factors:

- Waiver users were somewhat younger than other beneficiaries.
- In four of the five cities, they were less likely, rather than more likely to belong to minority groups.
- Proportions of men and women were similar in the two groups.
- There was no difference in the proportion of former users of public hospitals.
- Mortality rates were lower for waiver users

o Costs:

- Waiver users incurred lower hospitalization, outpatient department, and emergency room costs and higher physician and ancillary costs than nonusers.
- The added costs were more than offset by the savings, for a significantly lower overall cost to Medicare.
- Mean annual Medicare expenditures were:

	Waiver Users	Others	Difference
With ancillaries	$1,393	$2,090	$697
Without ancillaries	988	1,984	996

- The differences held up when adjustments were made for selection effects such as the fact that people with heavy prior health care use or with nursing home or home health care were less likely to use waiver services.

The analysis was unable to pinpoint the reasons for the Medicare effect. Thus, it is not known whether the broadened benefits improved primary care utilization in a way that led to less unnecessary hospitalization or whether cost-based reimbursement and/or the "incident to" waiver made any contribution to the results. However, the combination of a comprehensive effort by the municipalities, the Foundation, and HCFA, accompanied by substantial changes in provisions of both Medicare and Medicaid and by specific performance requirements and targets for participating health centers, does appear to have had a significant effect on Medicare utilization and costs.

References

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2. Gretchen V. Fleming, and Ronald M. Andersen, "The Municipal Health Services Program: Improving Access While Controlling Costs? Volume I, Social Survey Data," April 1985.

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VII. PHS FINDINGS CONCERNING PHYSICIAN-DIRECTED CLINICS AND URBAN MEDICALLY UNDERSERVED AREAS

Two of the questions to be addressed under the 1977 Congressional mandate have been studied by PHS. They are:

- The appropriate definition for physician-directed clinics.
- The appropriate criteria to use for the purpose of designating urban medically underserved areas.

PHS points out below that the definition of physician-directed clinics is operationally tied to another issue; namely, the question of what types of health care service can be provided, under what circumstances, by various categories of health care professional. For practical purposes, this question is answered partly in State laws regarding professional licensure and practice and partly in the reimbursement policies of public and private third-party payors.

With respect to urban medically underserved areas, PHS has concluded that the current geographic-based criteria for targeting Federal health care assistance do not adequately recognize the diversity of population groups within a geographic area. Accordingly, PHS has begun long-term studies of the feasibility of adopting population-based criteria. Until results are available, PHS recommends continued use of existing criteria, focusing on specific criteria for which data are available and which are relevant to the type of shortage to be addressed.

The detailed discussion which follows has been contributed by the Health Resources and Services Administration (HRSA), PHS.

Definition of Physician-Directed Clinics

HCFA, for Medicare reimbursement purposes, defines a "physician-directed clinic" as one where:

- a physician (or a number of physicians) is present to perform medical (rather than administrative) services at all times the clinic is open;
- each patient is under the care of a clinic physician; and
- the nonphysician services are under medical supervision.

In such clinics, services and supplies "incident to a physician's professional services" are reimbursable. "Incident to a physician's professional services" is defined to mean that the services "are furnished as an integral, although incidental, part of the physician's personal professional services in the course of diagnosis or treatment of an injury or illness. In addition, the services of nonphysicians must be rendered under the physician's direct supervision by employees of the physician."

While direct personal supervision by the physician does not mean that the physician must be present in the same room with his/her aide, HCFA requires the physician to be present in the office suite and available to provide direction and assistance at all times the aide is performing services. The supervision requirements imposed by this set of definitions establish a rigorous level of physician "direction" for Medicare reimbursement purposes.

The "incident to" provisions, however, are waived for rural health clinics. To qualify for reimbursement, a rural health clinic must be located in an area defined as rural by the Census Bureau which meets the Federal criteria for a medically underserved area or health manpower shortage area. It must employ a NP or PA and have an arrangement with one or more supervisory physicians who must be on site at least once every 2 weeks. The Rural Health Services Act of 1977 which authorized this waiver also requires all States participating in Medicaid to include coverage for primary health care services provided by NPs and PAs in rural areas unless the state has statutes which explicitly preclude these providers from delivering primary care.

The problem of developing an operational definition of physician-directed clinics, however, arises out of the application of differing State statutes. As pointed out above, although the "incident to" provisions have been waived for rural health clinics that are staffed by PAs or NPs, this waiver is only applicable where State statutes do not explicitly preclude such personnel.

Thus, the refinement of the term "physician-directed clinic" for urban clinics necessarily leads to a consideration of the definition of the scope of health professional practice--an area that has traditionally been a prerogative of the States.

In 1981, PHS contracted with the Institute of Medicine (IOM) to prepare a study addressing a number of issues related to the education and deployment of nurses. Among its purposes was:

> to determine the reasons nurses do not practice in medically underserved areas and to develop recommendations for actions which could be taken to encourage nurses to practice in such areas.

The IOM concluded:

> There is a need for the services of NPs, especially in medically underserved areas and in programs caring for the elderly. Federal support should be continued for their educational preparation. State laws that inhibit NPs and nurse midwives in the use of their special competencies should be modified. Medicare, Medicaid, and other public and private payment systems should pay for the services of these practitioners in organized settings of care, such as long-term care facilities, free-standing health centers and clinics, and health maintenance organizations, and in joint physician-nurse practices. (Where State payment practices are broader, this recommendation is not intended to be restrictive.)

As the recommendation indicates, both public and private reimbursement policy and the practice laws of some States deter the more widespread use of NPs and PAs in underserved areas.

Community health centers are private entities which must be licensed pursuant to applicable State and local law. Their personnel must be licensed, certified or registered in accordance with State and local laws.

Criteria for Designating Urban Medically Underserved Areas

In the decade following the Congressional mandate for the urban clinics demonstration, the systems which PHS uses to designate areas whose populations have difficulty gaining access to medical care have been refined. These refinements resulted from accommodation both to changing health care legislation resource distribution as well as the findings of various studies.

In general, the ability to make major advances in resource allocation to underserved urban areas has been limited because of both conceptual and data problems. It is commonly stated that residents of inner cities have barriers to health services, but inner city areas include a wide variation of socioeconomic groups, some who lack access to care and some who do do not. We do not yet fully understand the migration of urban residents to other parts of the city for health care, nor can we easily measure the actual accessibility of resources that are apparently available. For example, sufficient physicians may practice in an area, but their refusal to accept Medicaid or uninsured patients may inhibit care to these populations. Cost-effective means of collecting valid data on this topic have yet to be found.

In 1985, the Health Resources and Services Administration (HRSA), an agency within the Public Health Service (PHS), initiated a long-term study to address the limitations of geographic-based methodologies used for the Medically Underserved Areas (MUA), Need/Demand Assessment, and Health Manpower Shortage Area (HMSA) designation processes, and to develop, if possible, a population-based methodology. Results of the first phase of the study have confirmed the data problems and lack of sufficient methodologies for implementing a population-based approach.

Consequently, existing criteria are used to designate particular neighborhoods and population groups experiencing access barriers based on appropriate data obtained on a case-by-case basis.

Medically Underserved Areas

Designation Processes

The MUA designation process has existed since 1974 and currently serves two major functions: to designate priority funding for community health centers and to provide for special reimbursement arrangements between the Medicare and Medicaid programs and mid-level practitioners who function in rural MUAs under the Rural Health Services Act. The process is not used for placement of Federal service-contingent health professionals through the National Health Service Corps, a function reserved for HMSAs.

Medically underserved areas are designated using the Index of Medical Underservice (IMU), which predicts how a panel of experts would judge the relative level of medical underservice in specific geographic areas. The index is constructed using four variables: The primary care physician-to-population ratio, percent of the population below the poverty level, infant mortality rate, and percent of the population over age 65.

The IMU can, theoretically, be applied to any county, civil division or census tract, although physician and infant mortality data are generally available only at the county level. It can also be applied to any service area for which all four variables are available. However, in contrast to the HMSA analysis, the MUA process does not take resources in the contiguous area into account.

Need/Demand Assessment

Recognizing limitations of the MUA method and concerned that the MUA did not adequately permit the setting of funding priorities among underserved areas, in 1980 Bureau of Health Care Delivery and Assistance (BHCDA) created the Need/Demand Assessment process. The new process was to supplement MUA in that the MUA was to take the first look at identifying underserved areas while the Need/ Demand Assessment was to permit a closer examination of community health centers' service areas and targeted populations.

The Need/Demand Assessment compares estimated visits required by the target population to estimated visits that can be supplied by providers in the area. It is also largely applicable to Community Health Centers (CHC) that already have detailed data on the services provided and the population served by the CHC.

Now required as part of the Center's grant application, the process estimates the demand for primary health care in the service area and then compares that demand to the estimated supply in the service area and contiguous areas. The Need/Demand Assessment is much more community specific than the MUA process.

Health Manpower Shortage Areas

The HMSA designation has been the principal measure for targeting Federal resources in placement of health professionals. The HMSA criteria have been used in the following Federal programs:

- National Health Service Corps: to determine the placement of National Health Service Corps physicians, dentists, and other health professionals.
- Primary Care Residency Programs: to give preference to those programs that propose to provide a substantial portion of their training in HMSAs.
- Area Health Education Centers: to fund 10 percent of medical education in centers that are remote from the principal educational institution. Often these are in HMSAs.
- Medicaid/Medicare: reimbursement for physicians assistants and nurse practitioners services in rural clinics.

Section 332 of the Public Health Service Act defines a health manpower shortage area as "an area in an urban or rural area (which need not conform to the geographic boundaries

of a political subdivision and which is a rational area for the delivery of health services) which the Secretary determines has a health manpower shortage, a population group which the Secretary determines has such a shortage, or a public or nonprofit private medical facility or other public facility which the Secretary determines has such a shortage."

To be designated as a primary care HMSA, a geographic area must satisfy three criteria:

- The area must be a rational service area for the delivery of primary health care.
- It must have a population to primary care physician ratio of at least 3500:1, or if between 3500:1 and 3000:1 demonstrate unusually high needs for primary medical services or insufficient capacity of existing primary care providers.
- Primary care manpower in contiguous areas must be demonstrated to be overutilized, excessively distant, or inaccessible to the population of the area under consideration.

When an area's population to manpower ratio falls between the critical ratio of 3500:1 and 3000:1, a demonstration of unusually high need or insufficient capacity requires that the area meet at least one need criterion or at least two insufficient capacity criteria. The need criteria are: high birth rate, high infant mortality rate, and a high percentage of the population in poverty. The insufficient capacity criteria include high physician visit rates, (means as seen by the physician--more than 8000 visits per physician), long waits for appointments, excessive use of emergency facilities for routine care, rate of physicians not accepting new patients, and a low annual office visit rate (means on the part of the population--2.0 or less office visits per year per person).

A population group may be designated as a HMSA for primary medical care if it can be demonstrated that access barriers prevent its members from using providers in the geographic area in which they live. In practice, the Bureau of Health Professions (BHPr) finds the population group designations difficult but not impossible to administer because of inadequate data, such as those measuring provider acceptance of uninsured patients.

Facilities eligible to be designated as HMSAs include medium- and maximum-security Federal and State correctional institutions and public or nonprofit private residential facilities.

Progress has been made in both defining the populations at risk and obtaining the necessary data to achieve appropriate designations in specific cases. Constant contact is maintained with affected organizations and parties in an effort to develop the necessary data for designations.

An in-depth assessment and critique of the HMSA criteria by Mathematica Policy Research raised the following concerns:

- Physician-to-population ratios measure the availability of health services rather than identifying barriers to access; thus medical underservice in sparsely populated areas and some confined urban areas may be overlooked.

- The criteria do not take into account the dynamics of the future supply of and demand for health professionals.

- The criteria measure the need for health services but do not take into account unmet demand.

By applying data obtained on particular populations, appropriate population-to-physician ratios have been determined which in effect measure access as well as availability. The dynamics of future supply and demand are essentially taken care of by annual updates of the HMSA list. While the criteria tend to measure need rather than unmet demand, demand considerations are factored in by the National Health Service Corps (NHSC) in developing its Placement Opportunity Lists from the HMSA list.

In 1981 Congress directed the Secretary to evaluate the criteria currently used to designate shortage areas and to consider different criteria including actual utilization and indicators of unmet demand. In response to Congress' request, the BHP evaluated several alternative shortage area designation methodologies on their ability to characterize need, access, health status, utilization, insufficient capacity, and manpower availability. The 1983 examination showed that regardless of the index employed, a basic core of counties are identified as shortage areas. They are largely poor southern rural counties. However, beyond these areas, results diverge significantly, with the HMSA criteria performing as well in accurately identifying underservice as the alternative criteria.

Although the HMSA designation process is basically a geographic-based approach, despite the significant problems in using the approach to get data on small populations, there are many areas that have successfully done so. About ten percent (206) of the primary care HMSAs are population-based designations.

Both the MUA and the HMSA designation processes rely largely on a geographic-based approach to resource allocation, which may be less appropriate than it once was. Geographic boundaries are blurring as the demographic compositions of the inner city and some rural areas are changing. In an area where a segment of the population lacks access to care, the area may not be designated because the entire population does not have an access problem. As a result, a methodology based more heavily on populations has been suggested as a better means of targeting resources to those groups with barriers to health care.

Since studies have confirmed the data problems and lack of appropriate methodologies to implement a population-based approach for designation purposes, PHS recommends that existing HMSA and MUA criteria be used for designating specific urban neighborhoods and population groups.

VIII. IMPLICATIONS FOR THE CONGRESSIONAL QUESTIONS

In general, evidence from the UHCD and MHSP concerning the Congressional questions is inconclusive because of the limitations of the evaluation resulting from the voluntary nature of the clinic participation and the number of States involved. In the UHCD, differences between differently reimbursed clinics appear to have been influenced more by the health care environment in the States where they were located and by prior characteristics of the clinics --which in turn influenced their choice of reimbursement-- than by the reimbursement methods themselves. The two UHCD demonstration States may not be representative of the diverse practice patterns of NPs/PAs. The MHSP included a variety of provisions besides those specified in the Congressional mandate, so that it is not possible to attribute the results to specific causes. Meanwhile, changes in the health care system, resulting from the growing supply of physicians and other factors, have focused Medicare policy attention more on capitation than on cost-based reimbursement and have diminished the perceived urgency of waiving the "incident to" requirement as a means of improving health care access. However, the demonstrations and other studies do provide some evidence concerning these issues, as follows:

- Cost-based reimbursement appears to attract clinics anticipating high costs and -- partly for this reason -- to be associated with higher per-visit costs than fee-for-service reimbursement. No consistent or clear effect of cost-based reimbursement on total Medicare utilization and costs has been identified in the studies reported here, and no evidence has been found of an impact on quality of care.

- Physician compensation on a contract versus a salaried basis appears to increase provider productivity, but there is limited evidence suggesting a negative impact on the quality of medical records.

- The definition of a physician-directed clinic is operationally embodied in State laws and third-party reimbursement policies relating to mid-level practitioners such as NPs and PAs.

- Although there is a need for population-based criteria for determining medical underservice, recent studies have served to point out the data problems and lack of methodologies for implementing such an approach.

- Findings with respect to other provisions of Title VIII include:

  - Waiver of the "incident to" restriction on NP/PA practice had relatively little impact, partly because expanded use of NPs/PAs was inhibited by increased availability of physicians and intensified health care competition and partly because

clinics had not previously been held to a very restrictive interpretation of "incident to." If requirements for physician supervision were tightened, a waiver of "incident to" would become much more important to many of the clinics.

- It appears that in order to achieve significant impact on health care utilization and costs, such as that experienced under the MHSP, Medicare reimbursement changes both would need to be more extensive than those of the UHCD and would need to be accompanied by other incentives and by performance requirements and targets.

In addition to the above findings on the Congressional questions, the experience of the demonstration may also provide guidance for the future study of either these or future policy concerns.

Question 1: Advantages and Disadvantages of Cost-Based versus Fee-for-Service Reimbursement

A definitive comparison of cost-based and fee-for-service Medicare reimbursement in urban clinics is probably not feasible. It would require mandatory random assignment of a large number of clinics to the two reimbursement methods, and the experience of the UHCDs that this would be difficult to achieve. It would also require participation by multiple States, which could be prohibitively costly. The UHCD did, however, provide the following evidence relating to this question:

- Except for two clinics that chose cost reimbursement in order to obtain all of their Medicare payments from HCFA since they did not have Medicare provider numbers, clinics chose to be cost-based because they thought this would benefit them financially. In some cases, they had prior satisfactory experience with cost reimbursement; in others, they specifically anticipated high per-visit costs.

- Overall cost per visit was in fact somewhat higher in the cost-based clinics than in the fee-for-service clinics, both with and without removal of costs associated with ancillary services in order to improve comparability between large and small clinics.

- Medicare cost per visit was higher in the cost-based clinics even when the costs of ancillary services billed by the fee-for-service clinics were added to the visit charge to make the reimbursement methods comparable. No data were available on ancillary services that were provided by the cost-based clinics and included in the per-visit payment, so a comparison of visit content for the two types of clinic was not possible.

- Differences in total systemwide Medicare utilization and costs for patients of cost-based and fee-for-service clinics were dominated by State effects.

  - In California, but not Tennessee, patients of the cost-based clinics incurred significantly higher total Medicare costs than did patients of the fee-for-service clinics. The difference was due to higher inpatient and institutional costs, not higher ambulatory or clinic costs. Since the supply of hospital beds in California is lower than in Tennessee and the hospital occupancy rate is also lower than in Tennessee, this could reflect improved access to care through the cost-based clinics. No data are available to make this determination, and, in any case, such a finding would almost certainly represent a selection effect rather than a result of the clinic reimbursement method.

  - In Tennessee, there was no significant difference in total Medicare costs incurred by patients of cost-based versus fee-for-service clinics.

  - In Tennessee, but not California, the cost-based clinics appeared to provide greater continuity of care, in that their patients received a significantly higher proportion of both their ambulatory care and their total health care from the clinic itself than did the fee-for-service patients. This could be a selection effect since two of the four Tennessee cost-based clinics had unusually large and comprehensive programs.

Findings from the MHSP are inconclusive because cost-based reimbursement was only one of many reimbursement and other changes affecting participating clinics. Findings regarding the program as a whole were:

- The program successfully reached the target populations of children, minorities, and the uninsured or publicly insured. It increased primary care utilization and appears to have lowered inpatient utilization. However, it was not especially successful in attracting Medicare patients.

- The clinics, many of which were newly established and had high initial costs, were able to contain costs over time despite inflation. Their costs per visit were similar to those of the cost-based UHCD clinics, but they achieved visit rates generally higher than those reported by the UHCD clinics. They also had a stronger incentive to increase productivity since efforts in this direction were a condition of the demonstration grants.

- Program users had lower Medicare and Medicaid costs than do nonusers. Medicaid patients using the clinics incurred lower costs for outpatient and emergency room services and possibly also inpatient cost (difference not statistically significant), while for

Medicare strong inpatient cost savings more than offset the increase in ambulatory cost resulting from the expanded coverage, for a significant net reduction.

Again, it is not possible to attribute these results specifically to cost-based reimbursement.

There was no evidence from these demonstrations to suggest that either method of reimbursement had the effect of raising or lowering the quality of care. Several different approaches were used to assess the impact on quality of care. One methodology to document changes in quality of care used the UHCD mortality rates for the final demonstration year compared with national data for 1983 from the National Center for Health Statistics. For the purpose of comparison, clinic mortality rates were standardized for age and sex. Rates were then compared for cost-based versus fee-for-service clinics, demonstration versus control clinics, high versus low Medicare clinics, high versus low NP/PA emphasis clinics, and California versus Tennessee.

In addition, using Medicare claims data, comparisons were also made of utilization rates and charges per 1,000 beneficiaries for laboratory, radiology, and surgical services, in order to see whether the demonstration was associated with difference suggesting inappropriately high or low utilization. Finally, treatment protocols used by clinic providers were rated by a Registered Nurse on the basis of criteria relating to contents, organizations, and the presence of useful references.

Question 2: Method of Physician Compensation

Neither demonstration explicitly addressed physician compensation. However, many of the UHCD clinics obtained all or part of their physician complement on a contract rather than salaried basis, and the evaluation considered the reasons for, and effects of, this practice. Again, small numbers make the results suggestive rather than definitive.

The evaluation study found that clinics with a high proportion of their physician FTEs on a contract basis averaged significantly higher visit rates than other clinics, as well as a significantly higher clinic component of total health care costs. Physician costs were higher for these clinics, but this was offset by the higher productivity so that no difference in cost per visit resulted. A review of medical records against treatment criteria for selected "tracer" conditions did result in a significantly lower average rating for these clinics than for the clinics with more salaried physicians; no firm conclusions can be drawn from this, but a possible explanation is that the increased productivity is achieved at the expense of more thorough recordkeeping.

Question 3: Definition of Physician-Directed Clinics

HCFA defines a physician-directed clinic as a clinic where: (1) a physician is present in a medical (rather than administrative) capacity at all times that the clinic is open, (2) each patient is under the care of a clinic physician, and (3)

any nonphysician services are under medical supervision. However, there are varying views on what constitutes "medical supervision" and what kinds of nonphysician services are permissible. Operationally, the definition of physician-directed clinics is closely tied to another issue; namely, the question of what types of health care service may be provided, under what circumstances, by various categories of health care professional. For practical purposes, this question is answered partly in State laws regarding professional licensure and practice and partly in the reimbursement policies of public and private third-party payors.

Question 4: Criteria for Designating Urban Medically Underserved Areas

The designation of MUAs serves two functions: to designate priority funding for CHCs and to provide for Medicare and Medicaid reimbursement for services by midlevel practitioners in rural MUAs under the Rural Health Clinics Act. MUAs are identified using a formula based on the primary care physician-to-population ratio, percent of the population below the poverty level, infant mortality rate, and percent of the population over age 65.

To provide for closer study of area needs and allow priorities to be set among MUAs, the MUA designation process has been supplemented by the Need/Demand Assessment, required as part of all CHC grant applications. This involves estimating local demand for primary health care and comparing resource availability to demand.

To target areas for National Health Service Corps placements and other health manpower assistance, PHS designates health manpower shortage areas, or HMSAs. To qualify as a HMSA, an area must be a rational and primary care service area and must either have a population-to-primary-care-physician ratio of at least 3500:1 or demonstrate unusually high primary care needs or insufficient capacity (as measured by several criteria). Contiguous areas must be unable to supply manpower to make up the deficiency.

Several studies have concluded that the existing approaches do not identify underserved or shortage areas with sufficient accuracy, particularly in the case of areas where different population groups have different needs and characteristics. Accordingly, PHS has begun a long-term investigation of the feasibility of adopting population-based rather than geographic-based criteria for targeting need. Until results are available, PHS recommends continued use of existing criteria, focusing in each instance on specific criteria for which data are available and which are relevant to the type of shortage to be addressed by the proposed assistance.

Question 5: Other Changes in the Provisions of Title XVIII

One key issue that emerged from these studies was the role of NPs/PAs in urban clinics. The "incident to" restriction on NP/PA practice was waived in both the UHCD and the MHSP, but only in the former was the waiver emphasized or made the explicit subject of study. Due to the small number of participating States and clinics in both the UHCD and MHSP projects, it is not appropriate to project the results of these demonstration designs to the entire Medicare population. Therefore, these recommendations are offered as guidelines for future areas of study.

- Under the waiver, NPs/PAs accounted for an average of 16 percent of office visits billed by the clinics. These were primarily brief, limited, and intermediate visits, although a few extended or comprehensive visits were billed. Only a small number of clinics billed for NP/PA services offsite, primarily in nursing homes or the patient's home. However this may be a result of the particular States involved in the demonstration and other States may have shown different findings.

- The waiver facilitated Medicare services by several of the clinics with strongly NP/PA based practices by enabling more Medicare patients to be seen and permitting more flexible scheduling of Medicare appointments.

  - For some of the clinics, the waiver served more to validate existing practice than to actually change practice. The way clinics dealt with Medicare patients was governed by their overall practice behavior.

  - However, the "incident to" requirement could be interpreted to require closer physician supervision than would have been feasible for some of the clinics. A strongly enforced requirement for greater physician involvement would significantly restrict the provision of Medicare services by these clinics. Under these circumstances, the impact of waiving "incident to" would be much greater than was observed in the demonstration.

- In California (Tennessee had only one control group clinic), total Medicare costs were significantly lower for patients of the demonstration group (waivered) clinics than for the control clinics.

- At the clinic level, NPs/PAs showed somewhat fewer visits per FTE than did physicians regardless of demonstration category. However, the clinic statistics usually factored administrative time out of their physician FTE estimates, and the same does not appear to have been done for NPs/PAs.

- No significant difference was found in cost per visit between demonstration and control clinics. Among fee-for-service clinics,

Medicare cost per visit was higher for control clinics, but the difference was attributable to one high-cost control clinic and disappears if this clinic is excluded or if cost per visit is averaged by clinic rather than by patient.

During the UHCD, it became evident that for many of the clinics an increasing supply of physicians, competitive pressures to provide inpatient follow-up and on-call access, and in some cases policy guidance from the PHS were leading to greater reliance on physicians at the expense of a broadened role for NPs/PAs. Probably as a result of this trend, the NP/PA share of total visits barely increased during the demonstration, and there was a slight overall decrease in the level of clinical responsibility delegated to NPs/PAs. This suggests that clinics using NPs/PAs predominantly as a strategy for dealing with a physician shortage will perceive less need for a waiver of "incident to" in the future. This may not be true for all States because of the different provisions of State medical and nurse practice acts which permit PAs and NPs to practice under different constraints.

However, a number of the UHCD clinics had strong philosophical commitments to NPs/PAs and in varying degrees built their practices around them for reasons unrelated to physician supply. While most of these clinics had relatively small Medicare volumes, one extensive NP/PA user treated exclusively elderly patients. The "incident to" requirement could have a major effect on such clinics.

In the MHSP, the cost savings experienced by Medicare were achieved either in spite of or partially because of an expansion of Medicare benefits which included elimination of deductibles and coinsurance, and an expansion of coverage to include preventive medical, dental, and vision services; prescribed drugs; and several other services. Analysis of the results by the University of Chicago was unable to confirm a causal relationship between this aspect of the demonstration and the inpatient and total cost savings found. More study would be needed to determine whether expanded coverage would have a similar effect in the absence of the other reimbursement changes and the management guidance and incentives provided to the MHSP clinics.

While the results of these studies do not definitively indicate how Medicare services in urban clinics should be reimbursed, they provide useful guidance for future Medicare policy studies. Recent developments suggest that such studies will probably be directed toward various models of Medicare capitation rather than toward cost reimbursement. Relevant findings include:

- The MHSP demonstrated the feasibility and desirability of providing a major portion of health care services to the urban poor through neighborhood health centers.

- Although many of the UHCD clinics saw relatively few Medicare patients, some had very large Medicare populations, and there clearly exists among Medicare beneficiaries a population that receives much or all of its primary care through this type of clinic.

The use of more expensive hospital outpatient and emergency room services by these patients would probably be reduced by increased ability of the clinics to provide comprehensive services.

- For most urban clinics, effects of Medicare reimbursement practice alone are probably not large enough to significantly change the way the clinics operate.

- Effects from the health system environment may combine with reimbursement effects to produce quite different results in different environments.

- In order to significantly and consistently influence overall clinic operations and patient health care utilization, Medicare changes may need to be more extensive, integrated into a larger effort involving other sources of payment as well, and accompanied by guidelines or targets for clinic performance.

- Evidence from both demonstrations suggests that, at least initially, special efforts will be needed to market these programs to Medicare patients other than those who customarily use this type of clinic.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Health Care Financing Administration

6325 Security Boulevard
Baltimore, MD 21207

APR 16 1987

MEMORANDUM FOR THE SECRETARY

THRU: US _____
COS _____
ES _____

FROM: William L. Roper, M.D.
Administrator

SUBJECT: Transmittal of the Report to Congress on Medicare Reimbursement to Urban Clinics--ACTION

Purpose

Section 3 of the Rural Health Clinics Act of 1977 (P.L. 95-210) required the Secretary of Health and Human Services to prepare a Report to Congress on whether Medicare reimbursement changes mandated for rural clinics in underserved areas should be extended to urban clinics in underserved areas. The attached transmittal letters have been prepared for your signature.

Facts

The Rural Health Clinics Act of 1977 required that the Department of Health and Human Services address the following five research issues relating to the advisability of modifying Medicare reimbursement to urban clinics employing mid-level practitioners:

(1) The relative advantages and disadvantages of reimbursement on the basis of cost and fee-for-service for urban, physician-directed clinics;

(2) The appropriate method of compensation for physician services in such clinics;

(3) The appropriate definition of such clinics;

(4) The appropriate criteria to use for the purpose of designating urban medically underserved areas; and

(5) Such other possible changes in the provisions of title XVIII of the Social Security Act as might be appropriate for the efficient and cost-effective reimbursement of services provided in such clinics.

To analyze these issues, the Health Care Financing Administration (HCFA) in 1981 initiated the Urban Health Clinic Demonstration (UHCD) by awarding a competitive contract to Technassociates, Inc. The demonstration began with a 22-month design and planning phase. Early in this process it was recognized that the UHCD could not follow a classic experimental design, in which a sample of clinics would be identified that was representative of urban health clinics nationwide. A random sample would have been too costly because of the number of participating States and clinics required, and candidate clinics indicated that they wanted to choose their form of reimbursement and in general would not participate on the basis of random assignment.

The demonstration design called for two or three participating States, with clinics divided into either demonstration or comparison groupings. Within each of these groupings both cost-based and fee-for-service reimbursement methodology would be tested. Additionally, demonstration sites could permit mid-level practitioners, Physician Assistants (PA), and Nurse Practitioners (NP), to bill directly for their services.

The States were chosen through an extensive screening process, beginning with a review of national data and continuing with further study of potentially promising States and site visits to the most likely candidates. Recruitment difficulties reduced the number of States from three to two.

The demonstration was implemented in Tennessee and California and involved a total of 35 clinics, both demonstration and comparison sites. The demonstration operational phase was from August 1, 1983 to July 31, 1985.

The evaluation of the UHCD was conducted by Arthur D. Little, Inc. It was designed to determine and analyze the impact of the Medicare reimbursement changes on clinic operations and performance and on Medicare utilization and costs. The basic questions of interest to HCFA were:

- Whether the changes to reimbursement would lead to improved beneficiary access to clinic services, resulting in greater reliance on the clinics for primary care.
- Whether this would lower Medicare costs without impairing quality by substituting the clinics for more expensive sources of primary care and by allowing the clinics to manage total care more effectively.
- How the changes would affect clinic productivity, the cost of clinic services, and the quality of care.

In reviewing results of the demonstration, it is important to recognize the limitations of the evaluation resulting from the demonstration's voluntary nature and the fact that only two States participated. The most important of these were:

- The UHCD clinics cannot be said to be representative of the clinic "universe," and their experience cannot be used to predict experience nationwide or even statewide;

- Because clinics were self-selected into the demonstration participant categories, reimbursement effects often cannot be distinguished from selection effects. Some of the results might have been different had the clinics been randomly assigned.

The Public Health Service (PHS) provided input to the Report to Congress on the chapters on the appropriate definition of physician-directed clinics, and the appropriate criteria to designate urban medically underserved areas.

We recognize that changes in the health care system, resulting from the growing supply of physicians and other factors, have focused Medicare policy attention more on capitation than on cost-based reimbursement and have diminished the preceived urgency of waiving the "incident to" requirement as a means of improving health care access. Since the Urban Clinics demonstration was conducted prior to the TEFRA capitation changes, the findings from this report will not provide assistance in HCFA's goal of developing capitated health care alternatives for Medicare patients.

Listed below is a summary of the major findings:

Question 1: Advantages and Disadvantages of Cost-Based Versus Fee-for-Service Reimbursement

A definitive comparison of cost-based and fee-for-service Medicare reimbursement in urban clinics was not feasible due to the difficulty of securing clinic participation on the basis of random assignment. However, the demonstration results suggest that overall cost per visit was somewhat higher in the cost-based clinics than fee-for-service clinics.

Question 2: Method of Physician Compensation

Physician compensation on contract versus a salaried basis appears to increase provider productivity; however, small numbers of providers make the results suggestive rather than definitive.

Question 3: Definition of Physician-Directed Clinics

A physician-directed clinic can be defined as one where a physician is present at all times, the patient is under a physician's care, and any nonphysician services are under medical supervision. The issue of defining physician-directed clinics is tied to another issue; namely what types of health care service may be provided, under what circumstances, by various categories of health care professionals. For practical purposes, this question is answered partly in State laws regarding professional licensure and practice and partly in the reimbursement policies of public and private third-party payors.

Question 4: Criteria for Designating Urban Medically Underserved Areas

PHS has used three geographic-based approaches to identifying targets for Federal assistance. Two employ formulas: the designation of medically underserved areas (MUA), which is used to determine priority funding for community health centers (CHC) and to qualify rural clinics for the provisions of the Rural Health Clinics Act, and the designation of health manpower shortage areas, which is used to target areas for National Health Service Corps placements and other health manpower assistance. The third is the Needs/Demand Assessment, which is not formula-based, but involves a study of local health care demand and resource availability. To supplement the MUA process, CHC grant applications must include a Needs/Demand Assessment. PHS has begun to study the feasibility of adopting population-based rather than geographic-based criteria for targeting need. Until results are available, PHS recommends continued use of the existing criteria.

Question 5: Other Changes in the Provisions of title XVIII

For most urban clinics, changes to the Medicare reimbursement method alone are probably not large enough to significantly change the way the clinics operate. Regarding physician reimbursement, the study attempted to assess the merits of permitting mid-level practitioners to bill directly. During the demonstration there was a growing supply of physicians and increased competition for Medicare patients from other types of providers, i.e., outpatient hospitals and HMOs. Consequently, the NP/PA share of total visits barely increased during the demonstration, and there was a slight decrease in the level of clinical responsibility delegated to NPs/PAs.

Attachments

Tab A - Letter to Speaker of the House
Tab B - Letter to President of the Senate
Tab C - Report to Congress--Urban Clinics